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A VERTEBRATE FAUNA
OF
THE MORAY BASIN

BY

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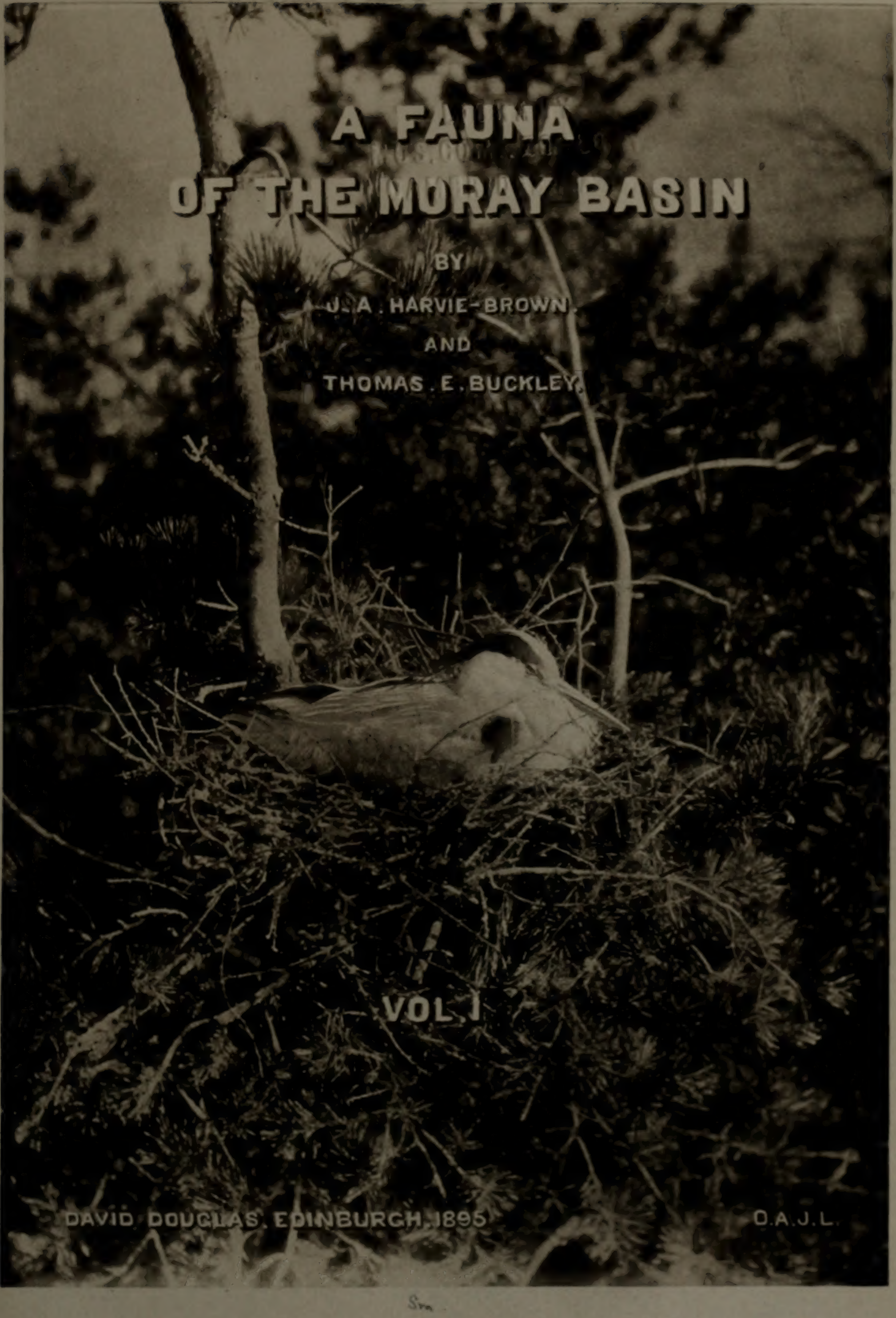

A FAUNA
OF THE MORAY BASIN

BY

J. A. HARVIE-BROWN

AND

THOMAS. E. BUCKLEY.

VOL. I

DAVID DOUGLAS. EDINBURGH. 1895

D.A.J.L.

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PREFACE

At the outset we desire it to be understood, that whilst undertaking this extensive area, and attempting to treat of its Fauna as a whole, we must crave indulgence for our many omissions and shortcomings, especially from those whose local knowledge must be very greatly in excess of our own. We wish also to take this early opportunity of gratefully acknowledging the frank, kind, and encouraging assistance we have received for many years back from that veteran naturalist, Dr. George Gordon,[1] as well as of many others who have given us every facility and aid, whose names appear for the most part in the text, during the sequence of the Faunal Lists, or receive mention in our Introductory Chapters.

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[1] Alas ! deceased since the above was penned. Dr. George Gordon died upon the 12th December 1893, his death resulting from an attack of influenza and congestion of the lungs. No later than July of the same year he was active and well when resident at Dufftown, and accompanied Harvie-Brown and a friend on a visit to the old ruins of Auchindoun Castle in Glen Fiddich. On that occasion he was delighted at the addition of a record to the ornithological notes of the district, viz. :—an albino or yellowish Missel Thrush, seen in the small glen close to the Castle (see under species). For a memorial of Dr. Gordon's life and work in Moray we desire to refer our readers to that given by Professor J. W. H. Trail in *The Annals of Scottish Natural History*, 1894, No. x. pp. 65-71.

As regards materials for a Chronological Vertebrate Fauna of Moray—at least that part of it south of the Great Glen—we have very continuous records for nearly a century, and perhaps no other area of Scotland, except Forth, can boast of such unbroken attention. We do not in our chronology go much further back than the old *Statistical Account of Scotland.* We pass on through the years of very general literary activity which succeeded, and in which the names of many Moray naturalists held prominent place—an activity not confined to the Moray Basin alone, but which was even more pronounced in Edinburgh, and some other parts of Scotland: we refer to a period which had its climax about the years 1828 to 1836. This was followed by the issue of the *New Statistical Account of Scotland,* and by the continuous records supplied by numerous local observers, and naturalists also from a distance, bringing our materials down to date of about 1850 to 1857. Scattered in footnotes throughout our volumes our readers will find most of the names, where they occur for the first time, of those who have assisted in building up a structure which we believe will compare favourably with that of any other Scottish area in interest, however far short our endeavours may come of doing it justice, and though it be far from ready for the copestones.

The chronology has been maintained since 1844 by the late Dr. George Gordon, who had lived with the century, and around whom clustered much of the earlier and later work which has been done. All have consulted him, and he has taken in hand many a young naturalist, and interested many a native in Moray; and they have ever found in him an enthusiastic, kindly, never-tiring, and steady friend and adviser, and Science an unwearying and conscientious recorder and defender.

Indeed, we humbly feel that Dr. Gordon was the man who ought to have undertaken these present volumes, and it is only with an honest sense of our own superficial acquaintance with the area, and at his express request that we should do so, that we have accepted the trust at his hands.

The roll of names of those who have contributed to the structure of the Natural History of Moray is a long and an honourable one, and we propose very shortly to sketch the past work accomplished, or rather to indicate some of the principal sources where such previous work may be found.[1]

As we have said, great activity was displayed early in the present century, not only in Moray, but all over the northern parts of Scotland, in literary and scientific pursuits. Sir Roderick Murchison and Professor Sedgwick worked at the geology of the Old Red Sandstone, ably aided and seconded by Hugh Miller, during his residence in Cromarty, and in 1838 Dr. Malcolmson discovered remains of fossil animals [*vide* a paper to the Geological Society, October 6th, 1838, the MS. of which was in the possession of Rev. Dr. George Gordon]. This was followed up by Dr. Gordon's own papers, and those by Mr. Patrick Duff, and has been brought down to the present day by the staff of the Geological Survey and many other independent workers—Dr. Joass of Golspie,

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[1] We desire to say that we are indebted to an extensive Chronological Bibliography—slips for which are in our possession, the result of assiduous collection; and which gives a long list of titles of books, pamphlets, magazine articles, reviews, articles, and even newspaper cuttings relating to Natural History, most of which—indeed, nearly all—are included in our library. We cannot in this place give these innumerable items, but that is the less necessary, because a similar work has been undertaken, and is in progress, by the New Spalding Club, at the hands of Mr. Robertson of the Aberdeen Free Library. A preliminary list has been already issued:—(*Hand List of Bibliography of the Shires of Aberdeen, Banff, and Kincardine*, by A. W. Robertson, M.A. Aberdeen: Printed for the New Spalding Club, 1893.) As this title indicates, the whole area of our present subject volume is not covered by this Bibliography; therefore it may be possible, before long, to add a supplementary volume which will supply the want.

Mr. William Jolly—Her Majesty's Inspector of Schools,—Thomas D. Wallace, F.S.A., and Dr. Ramsay H. Traquair.

Of other Naturalists and Sportsmen who have contributed to our knowledge of 'Moray' we desire to mention a few well-known names—Colonel Thornton, to whom, as a sportsman and falconer, we owe the record of the true Goshawk nesting in Strathspey; Charles St. John; Sir Thomas Dick Lauder; Thomas Edward; George Norman; John Hancock; J. Stables, late factor at Cawdor; Thomas Macpherson Grant, who resided at Ballindalloch, and enriched the Elgin Museum with a carefully labelled and authentic collection of birds; the Rev. James Smith, Rector of the Banff Academy; the brothers Allan or Stuart; Roualeyn Gordon Cumming and Lady Gordon Cumming of Altyre, whose fine collection of fossils is deposited in the Forres Museum; E. T. Booth; and others, of living naturalists whose names appear in the text, all, as we repeat, clustering round the central figure of Dr. George Gordon.

Although we bracket a large number of Edward's records we do not necessarily thereby throw discredit upon *him*, as it is well known it was more his misfortune than his fault that his specimens became dispersed, and are no longer traceable; we only bracket many because the records stand alone, and are otherwise unsupported by any other evidence, and their *faunal values* are of course thereby rendered nugatory in the absence of the specimens themselves. Nothing will give us more pleasure than to restore their values, should any of these old specimens of Edward's be yet discovered.

In this place we may call attention to our Medallioned Plate in Volume I., and we trust we have done justice in our selection, and that the portraits of these pioneer Moray naturalists will give pleasure to all our readers, whether natives of Moray or of a much wider country.

We must not omit to mention that, amongst our earlier available records, are those supplied in the very full and apparently careful and accurate MS. notes by Mr. Hoy of Gordon Castle, written into a copy of Berkenhout's *Outlines of Natural History of Great Britain and Ireland*, 1769. Mr. Hoy's notes are descriptive of species, and are comparative with Berkenhout's, but also contain records, with dates and particulars attached, which are valuable from a Faunal point of view, and these will be found alluded to in our text under the several species.

Considerable doubt has been thrown upon the authenticity of the records of the brothers Allan or

Stuart in consequence of their peculiar idiosyncrasies with regard to other matters, but we are ourselves of the opinion that their self-evident correctness and general enthusiasm for sport, and for the pursuits of gentlemen of that day, entitle their work to credit. Work in such directions is honest and above-board, and should in common fairness be so accepted.

Although so much was, and is, being done for Moray south of the Ness, yet when we cross to the north of that line the number of observers has been very small, and remains so to the present time. There are some scattered papers in the *Zoologist,* those of which relating to Sutherland have already been mentioned in our former volume on that area, and others relating to Ross-shire and Inverness-shire we refer to in the present. One or two are also to be found in the *Proceedings of the Royal Physical Society of Edinburgh,* and in the *Natural History Society of Glasgow.* Even St. John passes by nearly the whole of this portion of our area in silence, with the well-known exception of that part referred to in his *Tour in Sutherland.* A few facts may be culled from Booth's *Rough Notes* and the *Catalogue* of his Museum. But we think the most striking proof of sterility in this connection is, that in the three volumes of the

Transactions of the Inverness Scientific Society and Field Club there is only one short original paper devoted to the Birds of the district, and that by ourselves !; one short paragraph on the destruction of Salmon by stake-nets; and a communication from the Banffshire Field Club by Edward on the Protection of Birds. The three volumes cover a space of time from 1875 to 1888.

Nor have we been much more successful in obtaining correspondents elsewhere than our old Sutherland friends. Principal among these others was the late Lord Tweedmouth, who was at great pains to help us in every way in his power, and from his long connection with the North was especially serviceable to us when working out the history of the Osprey and Great Spotted Woodpecker. Those other correspondents who have aided us have done so most heartily and effectually, and their names will be found, as already stated, appended as footnotes here and there throughout our volumes. Had our subject been Archæology, Botany, or Geology, we should have had most able and efficient help, for on these subjects our friends in Inverness and the neighbourhood are authorities.[1]

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[1] So long ago as 1876 this apparent want of enthusiasm in Inverness was animadverted upon by Mr. William Jolly, Her Majesty's Inspector of Schools, on the occasion of an inaugural address of the Inverness Scientific Society's Field

We are especially indebted to the late Mr. Macleay, the well-known taxidermist of Inverness, for the loan of his ledgers, containing entries of all the examples of birds and animals sent to him for preservation. These records extend over a great number of years, and date from 1850 to 1892. Besides, he was at all times ready and willing to assist in every way, and this he was well able to do, from having such a long and extensive knowledge of the Northern Highlands.

Our acknowledgments are due to the many proprietors of estates, and their factors and gamekeepers, who have from time to time replied to our inquiries, and given us great facilities in prosecuting our personal surveys of the different portions of our area which we were able to overtake.

Especially are our grateful thanks owing to the artists and photographic artists who have contributed towards the illustrative portions of our volumes, viz., to the late Edward Hargitt, Messrs. Colin Phillip, Thomas

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Club, which he delivered (*The Scientific Materials of the North and our Scientific Work*, by William Jolly, Her Majesty's Inspector of Schools, President of the Society, p. 47), and he took the further occasion to draw attention to what 'other towns of far less population and importance had attempted along the south shore of the Moray Firth.' Since that time much most excellent work has been done by the Inverness Society, but, as we have seen above, of that a very small proportion refers to the Vertebrata.

Maclachlan, E. Caldwell, J. G. Millais, Oswin A. J. Lee, Mrs. Spottiswoode-Brodie, and Messrs. Norrie of Fraserburgh, Stewart of Elgin, E. W. Buckley, and W. Douglas.

To Mr. Colin Phillip we are obliged also for his lovely sketch of the Cairngorm Mountains, and the diagrammatic outlines which illustrate his admirable chapter—written for our volumes—upon the Boundaries of 'West Ross' and 'Moray.'

To Professor Traill of Aberdeen we are obliged for his revisal of proof relating to Botanical and Entomological names which appear here and there in our pages.

To our friend Mr. W. Eagle-Clarke we are grateful for much kind assistance and revisal of proof-sheets of the Mammalia and Reptilia; to Dr. Ramsay H. Traquair for his exhaustive Essay upon the Fossil and Extinct Vertebrata; to Mr. Sim of Aberdeen for assistance in certain directions with regard to the adjoining area of 'Dee,' principally as a side-light upon distribution; to Mr. Lionel Hinxman for much help, and for his notes upon the Geology of the Ladder Hills of Glen Livet; to Mr. Wm. Douglas for his interested and careful editorship, and revisal of Gaelic names of places, and assimilating ours with those given on the Ordnance Survey sheets; and to Mr. Lewis Dunbar for his good-fellowship and help in several directions, especially in our chapter on the history of the Ospreys in Strathspey, and his visit in our company to the ancient haunts of the rarer Raptores. We are also indebted to Professor Newton, who has always given us the benefit of his great experience, his advice and assistance, often it must have been at great sacrifice of his own valuable time, especially in connection with the Osprey's history, and allowing us to see portions of the correspondence of the late Mr. John Wolley and the late Mr. Thomas Edward. Our thanks in this connection also are due to the courtesy and assistance of Mr. Howes, of the Newcastle Museum, who sent us transcripts of the late Mr. Hancock's notes on the Ospreys of Strathspey.

With 'Shetland' and 'Dee' well in hand, and the great area of Moray finished, our task as regards the northern parts of Scotland is almost finished; but it is not exhausted, as perhaps the following remarks may show.

First of all, our premier volume—the *Vertebrate Fauna of Sutherland, Caithness, and West Cromarty*—unfortunately comprises portions of three distinct faunal areas, thus doing away in some measure with the subsequent uniformity of our series. Partly we have rectified this in the present volumes, by again giving a somewhat curtailed sketch of the greater portion of Sutherlandshire, which naturally belongs to 'Moray,' thus completing the present area. 'West Ross and Skye' is in good hands, and may be expected to be completed before long. There remains, thereafter, only Caithness and the north of Sutherlandshire. This latter area includes all the watersheds of the rivers that flow into the sea between Cape Wrath in the west to the Ord of Caithness in the east.

Much of this, especially the Caithness portion, is scenically most uninteresting, but the interest lies in the naturalist's point of view, and we think it would well repay further systematic investigation. For example, three species of birds breed commonly there, which only rarely, if at all as yet, ever do so in any portion of the vast area of 'Moray.' These are, the Scoter, Tufted Duck, and Richardson's Skua.[1]

Our present area is so vast that we have found it impossible to compress all our information into one volume—a fact we regret. But even now, as we have said, we do not consider that we have by any means exhausted its possibilities, and we wish to point out the particular districts that require further investigation.

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[1] It has been suggested to us that the name 'Sutherland,' as applied to an area, is confusing, as the county of that name belongs to no less than three distinct faunal areas; and that in future, what has been called 'Sutherland' in the past, should have its designation changed to 'Caithness.' Dr. Buchanan White's areas, however, we consider had better remain intact, as regards their designations, as only further confusion would be probably engendered by further change.

The valley of the Einaig—a tributary of the river Oykel,—the head-waters and valley of the Carron and Alness, and parts of the valley of the Conon, all require fuller description. The woods in the neighbourhood of Beaufort, on the Beauly, and the valley itself as far up as Erchless, we feel certain would yield good results to any one who searched them—localities which are well suited for Warblers and other summer visitors, containing as they do all kinds of trees, shrubs, and bushes. Several of the higher glens, although not perhaps likely to produce much novelty, may well merit fuller treatment; and the woods of Invergarry and Glen Urquhart, and all those which clothe the shores of Loch Ness and its tributary glens might yield in comparative abundance what are as yet considered as only rare visitors.

Passing now to the southward of the Great Glen, there is an extensive tract of country, which may be described as lying in a general position between Loch Ness and Badenoch and Strathspey, embracing the wide range of the Monadhliath Mountains, and extending from Corrieyairack Pass in the west, east and north-east to

Inverness, and thence east to Nairn, and further inland east to the old drove-road and the middle Findhorn, and Ferness, and embracing the numerous valleys which bear their streams northward to Loch Ness, and southward to the Spey, and the long upper valleys of the Findhorn and Nairn rivers. This area is almost unknown to us in detail, though appreciated perhaps in a more general sense.

This district may be said to be sufficiently shown upon sheets 73-4 and 83-4 of the Ordnance Survey Map of Scotland, on the 1 inch to the mile scale.

We have just mentioned how vast is the area of the Moray Basin. It embraces all the country drained by the rivers flowing into the Moray Firth between the Ord of Caithness and Cairnbulg in North-east Aberdeenshire, thus including the greater portion of the three northern and largest counties of Scotland, viz., Sutherland, Ross, and Inverness, besides the smaller ones of Banff, Moray, and Nairn, and part of Cromarty.

The spelling of Gaelic names is always unsatisfactory, as there seem to be so many different ways of doing so. In our present volumes we have followed, in almost all instances, that used on the Ordnance Survey sheets, much against our own inclinations in very many instances, as it is almost impossible, without a knowledge of Gaelic, to connect a name in that language with its ordinary phonetic rendering. Our method, however, has the merit of uniformity, and no doubt the names there used are the best available. It is indeed high time that the new Committee and its referees should place these Gaelic names upon a better and a more uniform basis.

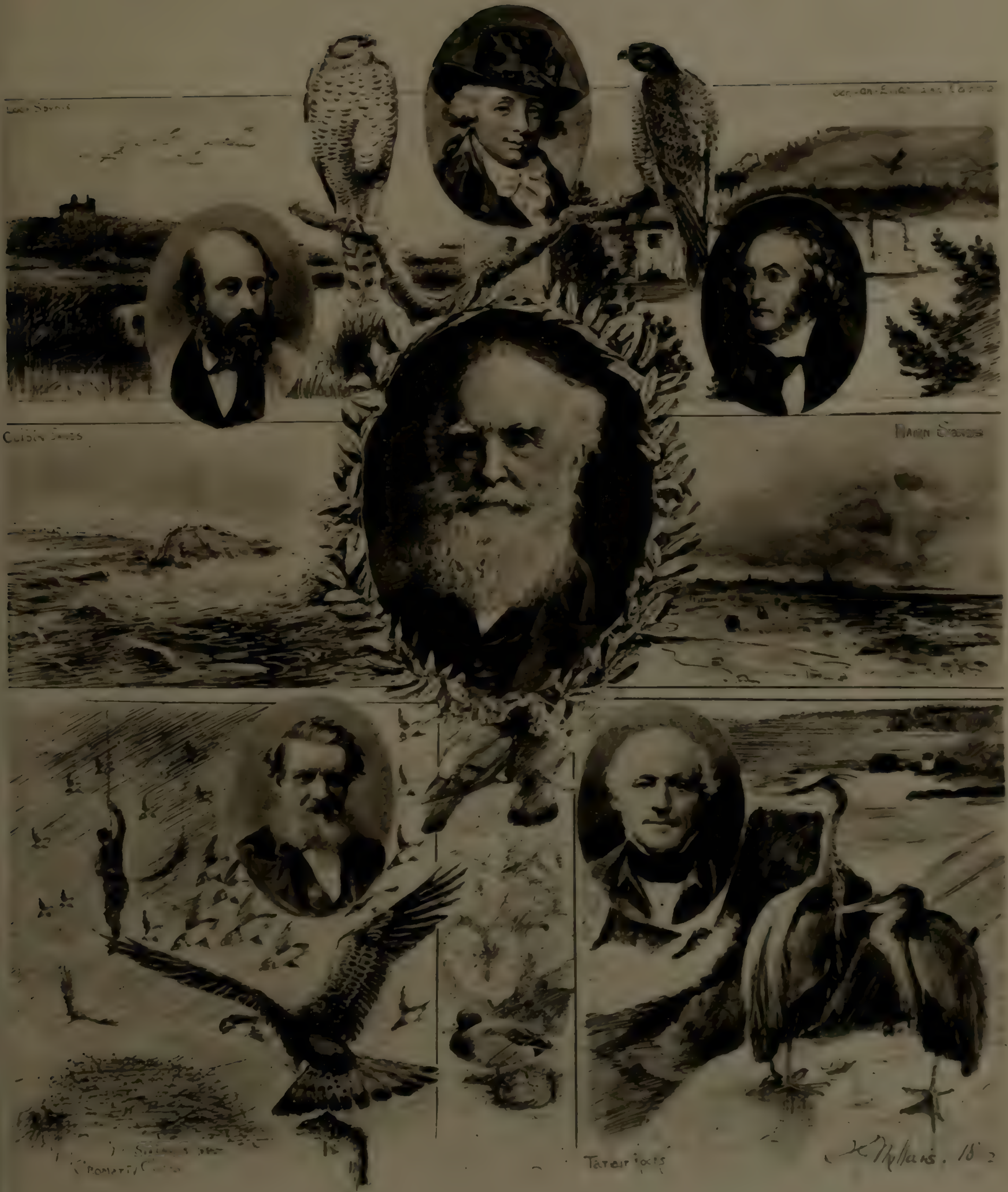
In our treatment of the species in our Faunal Lists we have given occasional notes of altitudinal dispersal, but a good deal remains for more careful work in this part of our subject. And such is of importance too, because altitudinal dispersal in this country gives temperatures and surrounding circumstances which find their equivalents at higher latitudes in Europe.

We have endeavoured from within our own narrow horizons in this, as in previous volumes of the series, to indicate the importance of natural areas and boundaries as determining to a large extent the faunal values. We have not, we hope, gone too far outside our own spheres, nor attempted too much, nor tried to speak learnedly of Botany or Geology, except where facts appear to be self-evident. We have referred to the great depression of the Caledonian Glen, and the more elevated and gravel-covered valley of the Spey, and of the ancient levels and probable depths of the ancient Moray Firth; we have also spoken of the great Geological fault, and have mentioned other matters of minor significance, whilst describing the features of the area. Some of our readers may desire to obtain fuller information upon these and other points, and here and there, generally in footnotes, we have indicated some of the sources whence such information may be obtained.

Finally, if it be allowable at all for authors to plead, we would like to put in a little word in justification of our treatment of this area in two volumes. The area treated of is quite double the size of any of the subjects of our previous volumes; the features of the country are much more varied, and, consequently, to illustrate these efficiently requires many more Plates. The Fauna itself is more extensive, and bears points of interest quite different from those of insular or western areas. To have made one large, thick volume would have rendered the book clumsy and heavy to handle.

J. A. HARVIE-BROWN.
T. E. BUCKLEY.

November 1895.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A VERTEBRATE FAUNA OF THE MORAY BASIN.

WATERSHEDS.

We now proceed, upon the plan hitherto carried out in previous volumes of our faunal series, to treat of the watersheds or boundary lines of our area. If sometimes unequal treatment of different sections appears, we desire it to be understood that certain of these are merely glanced at, because other opportunities are likely to occur, during the progress of the series, for completer surveys. This remark especially applies to the southern boundary of the Cairngorm watersheds, particularly those portions which march with Dee, which area is being undertaken by Mr. George Sim, of Aberdeen. We desire in this place to record our thanks to our friend, Mr. Colin Phillip, for his able contributions both as regards text and illustrations to our present work.

I. NORTHERN AND NORTH-WESTERN BOUNDARY FROM THE ORD TO THE CROMALT HILLS, EMBRACING PARTS OF THE COUNTIES OF SUTHERLAND AND CROMARTY.

Although part of this watershed has been described in a former volume (*Fauna of Sutherland, etc.*), still there are other portions that have not been touched upon. To make the whole boundary line of the Moray area, therefore, entire and continuous, and our present faunal area the more perfect, we, at the risk of some repetition, have decided to mark out the whole of the northern and north-western watershed, which lies almost wholly in Sutherland, and the rest in West Cromarty. And this we do the more readily as the volume just referred to has been for some time out of print, and therefore not readily available to those who may only be interested in our present area.

Commencing in the east, the watershed divides at the Ord, the high hill over which the main road from Sutherland to Caithness runs. Just here is the highest ground in this part of the watershed, one or two of the hills rising to 1300 feet and upwards in height. After a short run west, the watershed, which for some considerable distance forms the march between the two counties of Sutherland and Caithness, turns due north, and so continues until the boundary between the parishes of Reay and Kildonan is reached. There is little to remark thus far on the contour of the ground. The hills are of no great height, and the only one at all remarkable in any way is Cnoc-na-Neranach, or the Irishman, which has a peculiar pinnacle called the 'Seat,' well known to the lessees of the Torrish and Suisgill shootings.

After leaving the county march, the watershed follows a generally westerly course, across a large extent of flow ground, until Ben Griam Bheag (about 1900 feet) is reached; only one corrie on this hill sends its waters to the north, the remaining portion and its larger brother, Ben Griam Mhor (1936 feet) contributing theirs to the Helmsdale. Beyond the Ben Griam hills, and round by Loch Leum a' Chlamhain, the watershed runs through some of the wildest and most desolate-looking country to be found anywhere in Scotland, a great extent of flow ground, with lochs, small and great; after heavy rain the whole country looks like a sea. Leaving this dreary locality, the march takes a turn to the south, and runs along by the large Loch nan Cuinne, or Rumsdale, as it is more generally called; this is one of those large lochs that act as a reservoir to the river Helmsdale. Still pursuing a southerly course past Truid Air Sgithiche and Halmadrie, our course lies along the march dividing the parishes of Clyne and Farr, between Loch a' Choire (from which issues the Malert, one of the principal branches of the Naver) and Ben Armine, which hill drains almost wholly into the river Brora.

With the exception of the chain of large lochs, of which Rumsdale, just mentioned, is one, there are no very well-marked features in the country through which this part of the watershed runs. Indeed, in all this district the hills present no marked features, being mostly rounded and covered with vegetation. The view looking from Badenloch westwards is very fine and characteristic, and from here the western hills of Sutherland show out well. At Halmadrie there is a great extent of green ground, well drained by a canal made many years ago by one of the earlier sheep farmers.

Ben Armine is a hill of considerable importance. In height it rises in Creag Mhor to 2338 feet; it is one of the principal forests in the county of Sutherland, and is frequented by Ptarmigan.

After passing the headwaters of the Brora, our course leads north and west to include the watershed of the Shin. The Tirry is the first tributary of any importance, its ramifications heading up nearly to Loch a Bhealaich and the Crask, the latter a point on the high road between Tongue and Lairg, only too well known to those whose business takes them that way in stormy and especially snowy weather, being situated at the highest point on that road, just on the watershed between the Tirry and the Bagaisteach, which latter runs north into Loch Naver.

Passing the Crask, the watershed runs up to Ben Hee (2864 feet) and Glashah. These hills partake much more of the rugged nature of those of the West Coast, being less rounded, more broken and rocky, steeper, and altogether of a wilder character. The water from the south side of Ben Hee drains into the Fiack, a small river running through Loch Fiack, and thence into Loch Shin, the Glashah sending its southern waters into the head of Loch Merkland. From Glashah the watershed runs south between Loch More and Loch Merkland until Mealan-a-Chuail is reached. At this point the watershed is almost level, and it runs over the coach-road from Lairg to Scourie. Mealan-a-Chuail lies at the head-waters of the Shin and the Cassley; the former river from this point having a very narrow watershed along the south-west side of Loch Shin.

The boundary now runs over a good deal of low and uninteresting country, still about due south, until it rises almost suddenly to Coinne-mheall, the highest point in mighty Ben More (3273 feet). Ben More is the feeder of the two last rivers in

Sutherland with which we are concerned, viz., the Cassley and the Oykel. It is a magnificent hill, worthy of its name in every way, and, to our mind, can be seen to the greatest advantage from a point near Glencassley or Glenrossal, lower down the Cassley strath. From here there is no hill to intercept the view, and on a clear day, even at that distance—twelve or thirteen miles—every corrie and peak can be clearly seen with a good glass. After leaving Ben More, the watershed runs along Breabag, between Sutherland and Ross-shire, until the low, rounded hills of Cromalt are reached, passing on its way some dreary flows and moorland.

II. WESTERN BOUNDARY CONTINUED TO LAGGAN.[1]

The part of Scotland with which we have to deal, roughly comprises Ross-shire and that portion of Inverness-shire north of the Caledonian Canal. There cannot be said to be any well-marked backbone, but rather a mass of mountains cut into more or less extensive groups by transverse valleys, the valleys in some cases dividing the mountain masses almost to the sea-level, in others being mere passes over the general ridge, though these are scarce; the general direction being east and west. The streams on the west side are of much more rapid descent than those on the east; and the mountains also are of a more rugged and precipitous character. Each group has, as a rule, a special character of its own, but it may be said, on a first consideration, that the mountains are divided into three zones—eastern, central, and western—which take their characters from their rock-structure and the atmospheric influences which have been brought to bear on the rocks themselves. For instance, the traveller going westward from Dingwall to Strome Ferry, after passing through the rich and beautiful country of Easter Ross, where the farms rival the Lothians, plunges

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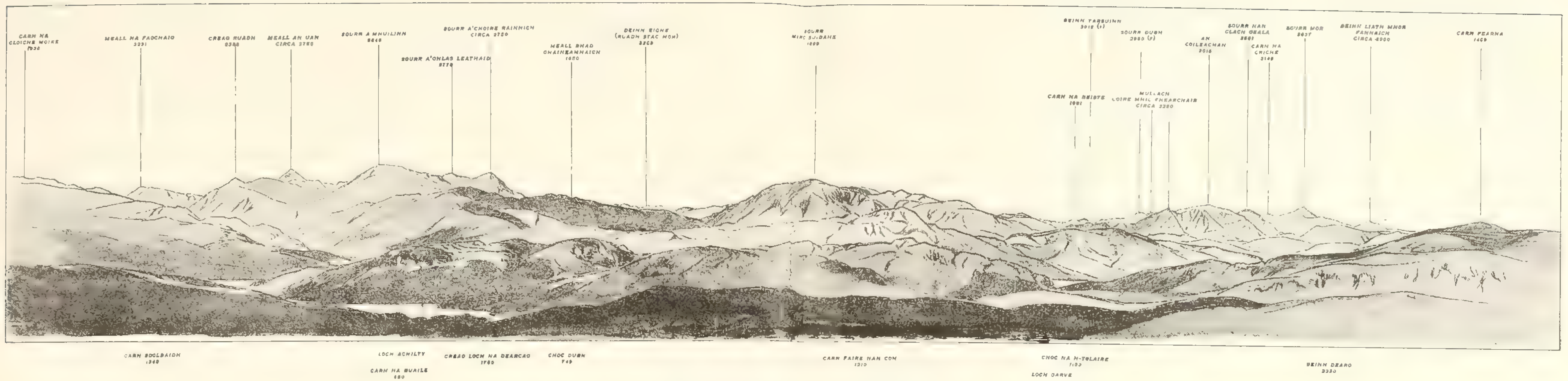
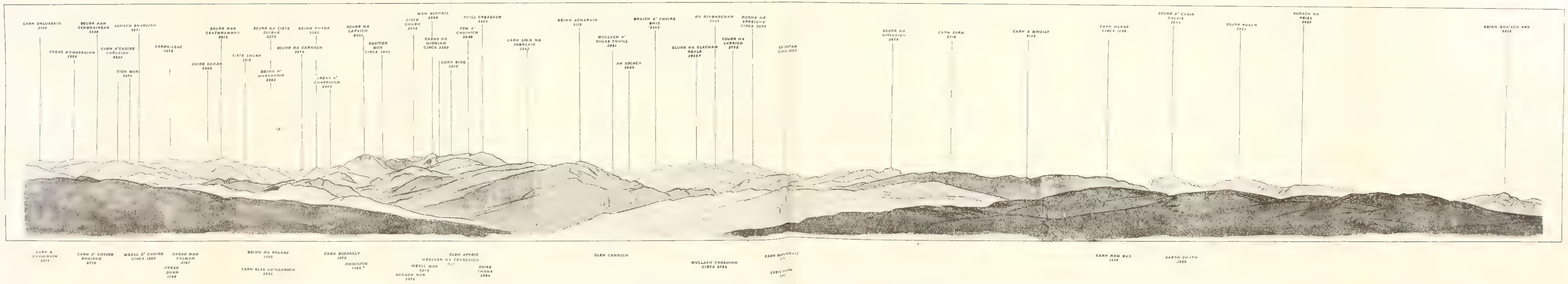
[1] Note.—The following pages, four to twenty, were contributed by Mr. Colin B. Phillip for the purposes of this volume.


CARN NA CLOICHE MOIRE 1936
MEALL NA FAOCHAIG 2231
CREAG RUADH 2386
MEALL AN UAN CIRCA 2750
SGURR A MHUILINN 2845
SGURR A'CHOIRE RAINNICH CIRCA 2750
SGURR A'GHLAS LEATHAID 2778
MEALL BHAD GHAINEAMHAICH 1650
BEINN EIGHE (RUADH STAC MOR) 3309
SGURR MHIC BHARRAIDH 1899
BEINN TARSUINN 3018 (?)
CARN NA BEISTE 1981
SGURR DUBH 2950 (?)
MULLACH COIRE MHIC FHEARCHAIR CIRCA 3280
AN COILEACHAN 3015
SGURR NAN CLACH GEALA 3581
CARN NA CRICHE 3148
SGURR MOR 3637
BEINN LIATH MHOR FANNAICH CIRCA 4000
CARN FEARNA 1469
CARN SGOLBAIDH 1349
LOCH ACHILTY
CARN NA BUAILE 680
CREAG LOCH NA DEARCAG 1760
CNOC DUBH 749
CARN FAIRE NAN CON 1210
CNOC NA H-IOLAIRE 1152
LOCH GARVE
BEINN DEARG 3550

FROM CATSBACK, STRATHPEFFER.


CARN GHLUASAID 3140
SGURR NAN CONBHAIREAN 3635
AONACH SHASUINN 2901
CREAG A'CHAORUINN 3390
CARN A'CHOIRE CHRUAIDH 2830
TIGH MOR 3276
GARBH-LEAC 3673
COIRE ODHAR 3388
SGURR NAN CEATHRAMHAN 3614
CISTE DHUBH 3218
SGURR NA CISTE DUIBHE 3370
BEINN A' MHEADHOIN 3003
BEINN FHADA 3383
SGURR NA CARNACH 3270
CREAG A' CHAORUINN 3452
SGURR NA LAPAICH 3401
SAOITTER MOR CIRCA 3800
CISTE DHUBH 3606
MAM SODHAIL 3862
CREAG NA HIONINN CIRCA 3250
CARN EIGE 3877
TOM A' CHOINICH 3646
TUILL CREAGACH 3452
CARN LOCH NA GOBHLAIG 2342
BEINN ACHARAIN 3119
MULLACH A' GHLAS THUILL 2591
AN SOCACH 3663
BRAIGH A' CHOIRE BHIG 3303
SGURR NA CLACHAN GEALA 3500 ?
AN RIABHACHAN 3696
SGURR NA LAPAICH 3773
RUDHA NA SPREIDHE CIRCA 3250
AN SGUAR CIRCA 3380
SGURR NA DIOLLAIDH 2676
CARN GORM 3218
CARN A MHUILT 3156
CARN MORAG CIRCA 1500
SGURR A' CHOIR GHLAIS 3554
SGURR RUADH 3254
AONACH NA BEISE 3687
BEINN BHA'ACH ARD 2826
CARN A CHAORAINN 2316
CARN A' CHOIRE BHUIDHE 2778
MEALL A' CHOIRE CIRCA 1250
CREAG NAN CALMAN 2167
CREAG DUBH 1789
BEINN NA SPARRA 1102
CARN GLAS LOCHDAROCH 2530
CARN BINGALLY 1973
KNOCKFIN 1450
GLEN AFFRIC
MEALLAN NA CEARDOICH
MEALL MOR 2216
AONACH MOR 3270
DOIRE THANA 2884
GLEN CANNICH
MULLACH TARSUINN CIRCA 2750
CARN GUBHSEALAIG
CREAG DUBH
CARN NAM BAD 1459
GARBH CHARN 2600

MOUNTAINS FROM CREAG MIGUEL, GLEN URQUHART.

into the wild rocky moorlands descending from the skirts of Ben Wyvis, which constitute the general character of the eastern side. These moors in their turn give way to the green pastures of Strath Bran in the central region. The central mountains are, as a rule, greener than either east or west, but higher than either. On reaching the summit level, just beyond Achnasheen, he descends to the western sea, through the wild rocky mountains of the western seaboard. It is also to be noted that the cliff-faces of mountains in this region are as a rule to the north-north-east or north-west.

The first group which demands our attention is that which occupies the ground roughly defined by the Oykel on the north, and Strath Dirrie on the south.

Most of the summits of this group are of the ordinary plateau form common to the central ranges of Scotland, or slightly dome-shaped, the tops being mossy and stony when the mountains are high enough to get beyond the ordinary limits of vegetation. In many parts there are deep and precipitous corries, and a few sharp and rocky peaks, which gain in importance by contrast with the flowing lines of the hills around them. The highest, and at the same time one of the most rugged of the group, is Beinn Dearg in the Braemore deer-forest, 3547 feet in height. This mountain is grandly precipitous on the north and north-east sides, and its summit, in form a flattened dome, is, when seen from the north, generally marked by a large patch of snow. The next in height is Cona Mheall, situated north-east of Beinn Dearg, divided from it by a corrie of great depth. The exact height of this mountain is not given in the Ordnance Survey map, but cannot be less than 3200 feet. It is a fine ridgy mountain, rocky and wild all round. Another top which deserves notice from its bold appearance goes by the name of Creagan Duine on the Ordnance Survey map, but is usually known as 'Sgorr,' 'The Peak' (about 2900 feet). A glimpse of it is caught from the mail road near Oykel Bridge, where its sharp summit is seen peering above the intervening moorlands. Other hills of this group are—Am Fraochagach, 3120 feet, in Strath Vaich; Carn Chuinneag, 2749 feet, above Diebidale; and Carn Bhren, 2080 feet, seen near Ardgay.

Immediately to the south of this range rises the great central mass of the Fannich hills. They are more abrupt and peaked than the ones just described, though there are rounded forms amongst them. The highest is Sgùrr Mòr (3637 feet); seen from north and north-west, it is a graceful sharp-pointed cone. Next in height to Sgùrr Mòr is Sgùrr nan Clach Geala (3581 feet). It is marked by a tremendous precipice on the eastern face, which has the appearance of having been scooped out by a gigantic cheese knife. The corrie is some 1800 feet deep. The precipice face is broken 600 or 700 feet from the top by a steep slope, which ends in an abrupt descent, with a talus of stones to the bottom of the corrie. The Eagen (about 2800 feet) rises at the east end of Loch Fannich. This mountain has a particularly picturesque appearance from the road between Fannich Lodge and Loch Luichart. Its principal feature is a great precipice facing north-east. The only other hill which is worthy of especial notice here is the smooth, isolated Fionn Bheinn (3060 feet) behind Achnasheen station.

To the east lies the massive Ben Wyvis (3429 feet), which, excepting for its height, the space it covers, and its position close to the German Ocean, presents nothing remarkable beyond the typical cliffs and corries on its east and north-east slopes. It has been misnamed the King of Ross-shire Mountains; there are at least a dozen which deserve the title better. In form it is a long, flat-topped, shapeless mountain, with several outliers of similar form. To the north lies Feachdach (3018 feet); to the south, Little Wyvis (2497 feet).

To the west of these groups, and lying along the western seaboard, rise some of the finest mountains in the British Islands. Like the peaks of Assynt in Sutherland, they are formed of Hebridean gneiss, Torridon sandstone, and quartzite. For convenience sake we will divide them into three divisions:—(1) the northern, between Little Loch Broom and Loch Maree; (2) the middle, between Loch Maree and Loch Torridon; and (3) the southern, between Lochs Torridon and Carron.

Commencing in the north, we have a long line of hills of no great height, dividing Big and Little Loch Broom, terminated at its western end by Ben Ghobhlach (2082 feet), formed of Torridon sandstone, and picturesquely shaped. At the head of Little Loch Broom rises the magnificent Teallach (3483 feet), occupying nearly the whole space between Little Loch Broom and Strath na Sheallag. It is mainly composed of Torridon sandstone, but its east buttresses are capped with quartzite. It is formed by a number of peaks closely congregated together, connected by narrow ridges, its principal summits rising to a considerable height above the cols. Its eastern face is carved into two enormous corries, divided by a sharp ridge, and encircled by precipices with jagged peaks. The south corrie contains a dark green tarn—Toll an Lochain—which for savage grandeur is only surpassed by Coruisk. The cliffs at the head of the tarn are about 1800 feet above the water, and in one place descend sheer into it. They are broken into buttresses and spires of the wildest imaginable forms. The principal peaks, commencing in the north, are—Glas-Mheall-Mòr (3176 feet); Bidein a' Ghlas Thuill (3483 feet); Sgùrr Fiòna, at the head of Toll an Lochain (3474 feet); Sgùrr Creag an Eich (3350 feet), above Loch na Sheallag, connected by a long ridge with Sgùrr Ruadh (2492 feet). A very remarkable stream, noticed by Dr. M'Culloch in his book on *The Hebrides and Western Isles*, descends from the Teallach into Little Loch Broom, about two miles from its head, and displays along the last mile of its course almost every variety of waterfall scenery. West of Teallach is the curious dome of Sal Mhor (2508 feet).

South of Strath na Sheallag there is a large group of rugged summits all of marked individuality. Beinn Dhearg Bheag (2650 feet), Beinn Dhearg Mhor (2974 feet), have jagged summits like parts of Teallach; Beinn a' Chlaidheimh (2960 feet), Sgùrr Bàn (3194 feet), and Mullach Coire Mhic Fhearchair (3320 feet), are capped with quartzite, and are consequently extremely rough and stony. On the east slope of Sgùrr Bàn is a very peculiar slab of quartzite rock. The whole surface of the mountain is quite bare and set at a very low angle; the rock is so exceedingly slippery as not to be easily walked upon with nailed boots. Out of the centre of this desolation rises a curious little green cone, called Meallan nan Laoigh. To the west of these summits rises Ruadh Stac Mhor (2940 feet), which, from some points of view, resembles a cap of

Liberty. South of it rises A Mhaighdean, the height of which is rather uncertain, the Ordnance Survey giving it only the 2750 feet contour (which might mean anything up to 3000), but as in this part of Scotland the contouring is excessively careless (notably in the case of the southern buttress of Teallach, Sail Liath), that is not much to go upon. I have on two occasions made it 3150 with my aneroid, which does not usually err much from the other heights given by the Survey; and Dr. Heddle, of St. Andrews, makes it much about the same, so I am disposed to believe it to be nearly correct. This is important, as it is probably the highest point reached by the Hebridean gneiss in Scotland. It is a fine mountain, with precipices both on the north and south sides. The latter precipice is by far the most magnificent, being cut down from the summit for nearly 1000 feet almost perpendicularly and continuing for another 1000 feet, by a very precipitous craggy slope, to the valley. The western ridge is very curious, being formed of the remains of the Torridon sandstone, which has all been denuded away with the exception of this ridge, which cannot be much over 100 feet thick. It is cut into detached pinnacles, which look like piles of biscuits. Beinn a' Chaisgein Mor (2802 feet) is a large tabular mountain to the north-west of A Mhaighdean, with two buttresses to the south—Sgùrr na Fearsaide and Sgùrr na Laocain —the latter a great pile of precipices 2000 feet high.

Immediately to the south of these rises the long rugged ridge of Beinn Tarsuinn Chaol, terminated on the north by the magnificent cliff of Creag an Dhubh Loch, which descends in a hard, firm wall, about 1000 feet high, into the waters of the Dhubh Loch.

East of this rises Beinn Tarsuinn, a long, thin-ridged mountain of Torridon sandstone, on the north shore of Lochan Fada. South of this loch, and between it and Loch Maree, is the famous Slioch (3217 feet), too well known to need any description.

Divided from it by a very deep and narrow valley, Glen Bianasdail, rises the precipitous-faced Beinn a Mhuinidh (2231 feet). North-west of Slioch a chain of hills runs parallel with Loch Maree. First comes Beinn Lair (2817 feet), which towards Maree presents long irregular slopes, and has an extended line of precipices on the northern side ranging from 700 to 1600 feet in depth.

Much the same description applies to the smaller Meall Mheannidh (2391 feet). The ridge terminates at the beautiful Beinn Airidh Charr (2593 feet), a mountain of hornblende schist, which descends to Loch Maree in the grand broken crag, Craig Tairbh. On the north side a tremendous precipice faces the Fionn Loch.

Between Loch Maree and Torridon rise several large isolated mountain groups. At the north-east corner the first is the strange quartzite mountain of Beinn Eighe. This is the largest, but not the highest of these groups, and is distinguished from the others by being almost entirely formed of quartzite, while the others are almost all formed of Torridon sandstone. It is a long narrow ridge cut into several sharp-pointed summits, with buttresses and outliers to the north and north-west. Of the main ridge the following are the names of the peaks in succession, commencing at Kinlochewe:—Sgùrr an Fhir Duibhe (3160 feet),—this peak has several sharp black jags, like a saw-edge, as seen from Kinlochewe; hence its name, 'the Peak of the Black Men'; Sgùrr Bàn (3188 feet); the next top has no name (3220 feet),—this is generally known as Beinn Eighe. Seen from Loch Clare it presents a sharp black buttress of sandstone called Stuc Coire nan Laoigh; Còinneach Mhòr (about 3200 feet); Sàil Mhòr (3217 feet). Of the outliers, Ruadh Stac Mòr (3309 feet) is the highest peak of the mass, and very much separated from the main body. Between this and the two just before mentioned lies the deep Coire Mhic Fhearchair, with its tarn. Còinneach Mhòr, at the head of the corrie, has a splendid cliff, about 1000 feet high, composed of three perpendicular stages of nearly equal height, two of quartzite, one of sandstone.

Sàil Mhòr is a sharp peak of sandstone, and its cliffs, towards the corrie, have the terraced appearance peculiar to that formation in a very marked manner. Circling round the mountain they give it almost the appearance of some old Indian temple. Beyond Ruadh Stac Mòr is Ruadh Stac Beag (2900 feet) a curious dome-shaped outlier of quartzite, almost entirely isolated from the main mass. Over Loch Maree is Meall a Ghuibhais (2882 feet); its base is beautifully fringed with old fir-wood.

To the south-west of Beinn Eighe is the extraordinary mountain, Liathaich (3456 feet). It is a long, narrow mountain, with two tops some distance apart, both capped with quartzite, and connected by a narrow ridge, called the Fasarinen, its north-western face cut into a series of deep corries divided by wild, rocky buttresses, while the south-eastern face is wild, rocky, and precipitous. One buttress especially, just below the highest peak, terminates in a precipitous slope nearly 3000 feet high.

On the north side of Loch Torridon rises Ben Alligin (3232 feet). It has several well-marked summits facing round the great corrie, Toll à Mhadaidh. Nearest the loch is Spidean Coir' an Laoigh (3022 feet)—with a deep corrie of the same name high up on its shoulders,—terraced in form. It gets steeper as it descends, till it ends in a final drop of 600 feet. There are several tracks on the face of the cliff through which the deer-stalkers make their way, a decidedly heady performance. Sgùrr Mhòr (3232 feet) is the highest. It is deeply gashed by an extraordinary split, about 50 feet below the top, called Eag-na-h-Each, and somewhat resembles the Devil's Kitchen in Wales. It is formed by the eating away of a softer bed of rock, leaving two perpendicular walls, one of which, on the north side, is about 600 feet deep. When looking down the gash, the depth is apparently much greater, as the cliffs stretch down in perspective almost to the bottom of the corrie, a depth of nearly 2000 feet. The ridge is finely terminated by three pyramidal peaks, called the Rathains (the highest 2840 feet), which are precipitous on the north-west side. Sgùrr Mhòr is unusually smooth and green towards the west. The floor of Toll à Mhadaidh is almost entirely occupied by an enormous débâcle of stones, which must have fallen from the cliffs. As far as I know, this is the largest thing of the sort in Scotland. Other mountains of this district deserving notice are Beinn Dearg (2994 feet); Bus-bheinn (2869 feet), a picturesque, ridged mountain, with several strongly-marked summits seen from Gairloch; and Beinn an Eoin (2801 feet).

South of Torridon are the Loch Carron and Applecross mountains. The Carron hills usually go by the name of the Beinnan Laobh liath (the 'Grey Heads'), from their quartzite cappings. There has been a great deal of faulting among the rocks here, resulting in a curious intermingling of colour. The first to the north is Sgùrr Dubh, over Loch Clair (2566 feet), a picturesque quartzite peak; succeeded by Beinn Liath Bheag (2840 feet); Ben Liath Mhòr (3034 feet), quartzite ridges of the utmost sterility. These are divided by the deep Corrie Lair from the two finest of the group—Fuar Tholl (2967 feet) and Sgùrr Ruadh (3142 feet). Fuar Tholl is over Achnashellach, and from the north-east and south-west presents the facial outline of a recumbent head, the nose being formed by a perpendicular cliff on the north side. This mountain is very striking from the railway, rising in two tiers of precipice. Sgùrr Ruadh, as seen from Torridon, is an extremely sharp black peak, surmounting an almost white quartzite buttress; the contrast in colour is in certain lights very strikingly displayed. Both these mountains have magnificent precipices into Corrie Lair.

On the south side of Loch Torridon is Beinn Damh (2958 feet), a sandstone mountain capped with quartzite, with a grand corrie and cliff on its north face. Meall à Chinn Deirg (3060 feet) rises to the east—a very steep cone of sandstone, with deep corries holding tarns on the north and south sides. Ruadh Stac (2919 feet) is immediately to the south, formed almost entirely of quartzite, and very precipitous on the north, with long slopes of quartzite descending to Loch Carron. A much lower hill, Ben Shieldaig (1667 feet), deserves notice on account of the strongly-marked junction of Torridon sandstone and Hebridean gneiss at its base. The junction is well seen from the head of Loch Torridon.

The Applecross hills differ very much from their neighbours, though also of the sandstone formation. They have the same precipitous sides, and are as sterile as most, but, instead of being narrow ridges, they are long and almost flat-topped hills, divided from each other by deep and precipitous corries, leading to lofty cols. Over one of these cols, the Bealach-nam-Bo, the road from Kishorn to Applecross is carried, and attains to the height of 2054 feet in a series of corkscrews. It is the highest driving road, with one exception (Cairnwell), in Scotland. Meall Gorm (2325 feet) rises almost perpendicularly on the south side of the glen, and Sgorr na Caorach (2600 feet) on the north. The latter has another top north-west (height, 2538 feet), which is almost a separate hill. It is precipitous on the north side from both tops. From the most westerly one projects a buttress called Na Ciochan, which is very narrow, and has five summits descending one beyond the other from west to east. It is nearly perpendicular on three sides, and its highest top is upwards of 2000 feet above the corrie (Coire nam Faradh). The largest and highest of the Applecross group is Beinn Bhan (2936 feet). Its north-westerly face is carved into seven corries, and the mountain is, from end to end, upwards of nine miles long. The wildest of the corries is that just under the highest point, Coire a' Phoit (the Corrie of the Pot), buttressed on the north and south sides; that on the north (A-Chioch) is a conical top, connected with the main ridge by a narrow arête, which is the highest. The other buttress, a' Phoit (the Pot) gives its name to the corrie. It contains two black tarns, almost perpendicularly below the highest top of the mountain, at the depth of 1400 feet.

Returning to the central ranges south of the Dingwall and Skye Railway, and eastward of a line drawn from Achnasheen to Scardroy Lodge on the river Meig, we find the hills of much less height than in either the Fannich or Braemore groups. Sgurr a Mhuilinn (2845 feet) and its surrounding peaks—Sgurr à Ghlas Leathaid (2778 feet), Meallan nan Uan (2750 feet), look very imposing, owing to the flat moorlands with which they are surrounded, and the peaked and abrupt forms of the summits themselves. Sgurr Mairc Suidhe (1899 feet), at the west side of Loch Luichart, is the only other prominent hill of this group. Connected with these on the west, by wide moorlands, is Moruisg (3026 feet), a large mountain with several elongated tops. Sgurr na Ceannaichean (2985 feet), to the south-west of it, is a picturesque mountain, with a lofty precipitous crag on its south-west shoulder. Between the rivers Meig and Orran is a confused mass of hills rising to no great height, and not very marked in any way, with the exception of Bac an Eich (2791 feet), in the Strath Conan Forest. These ranges are connected with the loftier ridges of the west, which rise on the north shore of Monar. The first mountain of importance from the east is Maoile Lunndaidh (3295 feet), a tabular mountain from which the head waters of the Conan flow, here called the Meig. Being near the centre of the country, it is a very cold hill, and keeps the snow far into the spring. West of it rises the beautiful sharp-peaked Bidean an Eòin Deirg (3430 feet), the most picturesque mountain in this part; it is surpassed in height by Sgùrr a' Chaoruinn (3452 feet), a massive hill to the west of it.

At the head of Loch Monar is a ridge running due west, of which Lurg Mhòr (3234 feet) and Bidein a' Choire-Sheasgaich (3102 feet) are the two peaks. The latter is one of the most curious-looking peaks in the Highlands. It rises from a main ridge of considerable height in a very sharp cone, and from the south side especially its summit appears as sharp as a lancet. Seen from Loch Duich, over the summit of Beinn Dronnaig, it grandly and picturesquely dominates over everything.

Ben Dronnaig is here worthy of a passing notice, more from its size and the way in which it stands quite apart from the other hills, than from its height (2612 feet). It is mostly green, with two fine corries on the south side; some of the boulders on the top being literally studded with small garnets.

Between the Orran valley and Glen Strath Farrar, is a well-marked and very high range of mountains. The most familiar is Beinn a' Bha'ach Ard (2826 feet), the prettily peaked mountain seen from near Beauly. It is, however, far surpassed in height and abruptness of form by Sgùrr a' Choir Ghlais (3554 feet), Sgùrr Fhuar-thuill (3439 feet), and others which form the northern boundary of Glen Strath Farrar.

These ridges herald the approach to some of the loftiest ranges of Scotland. Both for number and size the mountains with which we have now to deal (extending from Glen Strath Farrar on the north to Glen Moriston and Glen Shiel on the south) are only surpassed by the great ranges of Cairngorm at the head of the Dee, and by the lofty ridge trending north-east from Ben Nevis.

The first great mass rises between the great valleys of Glen Strath Farrar and Glen Cannich. The range commences at Sgùrr na Diollaid (2676 feet), an extremely picturesque, ruggedly outlined mountain. After this the mountains rise to a greater height; running through Creag Dhubh (3102 feet) and Càrn na Gobhar (3251 feet) they culminate at the magnificent peak of Sgùrr na Làpaich (3773 feet). This is one of the most beautifully formed mountains of the type in Scotland.

Divided from it by a deep precipitous corrie (Tollan Lochain) is the enormous mountain An Riabhachan (3696 feet); this is the highest summit altogether in the county of Ross, though there are others on the county boundary which rise to a greater height. It is a green and smooth mountain, and is more remarkable for its bulk than for anything else. Its slopes and shoulders stretch for a great distance westward, and are divided from the hills of Killilan Forest by the hollow of Corrie nan Each. These hills have at first a similar character, though rising to a much less height; Aonach Buidhe (2949 feet) and An Creachal Beag (2854 feet) being the most prominent in the easterly part of the range.

Beyond this they become more rugged in character, and beyond Am Fitheach (2847 feet) the range terminates at Sguman Coinntich (2881 feet), a grand conical hill at the head of Loch Ling. To the west of this the ranges subside into the rugged moorlands of the Loch Alsh district, which have several fine crags such as Creag an Dollaid at the back of Duncraig Castle on Loch Carron.

In the Kintail district the mountains are closer together than in most other parts of Scotland, and are connected with the great ranges on both sides of Glen Affric. Commencing at Loch Ling, a branch of Loch Alsh, the hills are at first extremely rugged but not very high. They are rather summits rising from a high moorland than separate hills, and attain at Boc Mor (2064 feet) (a curious conical rocky top) and Carn Bad-à-chreamha (2073 feet) their greatest elevation.

These are divided by the deep cleft of Coire Dhuinnid from the loftier Sgùrr an Airgid (2757 feet)—or Tulloch Ard as it is sometimes called, the watch-cry of the Clan Mackenzie—it is a very rugged mountain, connected by an equally rugged range with Carnan Cruineachd (2386 feet), which has a bold appearance from above the Falls of Glomack. At this point the range changes considerably in character, becoming much less heathery and more verdant and rises to A' Ghlas Bheinn (3006 feet). It is divided by the river which forms the Falls of Glomack from the main chain which forms the north side of Glen Affric, and by the Bealach na Sgairn from Ben Fhada. The first of the Glen Affric mountains is Sgùrr nan Ceathreamhnan (3771 feet), a double-peaked mountain throwing out ridges in almost every direction, that towards the north almost joining the ranges of An Riabhachan. The north-east ridge is very peculiar, extending for some miles at an almost uniform height and dividing Glen Sithidh from Glen a Choilich, the head waters of Glen Cannich.

The eastern ridge connects it with Mam Sodhail (3862 feet) and its northern summit of Càrn Eige (3877 feet), the two highest mountains north of the Caledonian Canal. These throw out ridges to the north, south, south-east, and east. The northern ridge terminates at Beinn Fhionnlaidh (3294 feet), a very steep green hill; the southern one at the Saoiter Mòr (3500 feet), and the south-easterly in the very finely shaped peak of Sgùrr na Làpaich (3401 feet) above Loch Affric. The easterly is the main ridge. The first summit east of Càrn Eige is Creag na h-Eige (3753 feet); beyond this the range increases in wildness and ruggedness, going through Sròn Garbh (3723 feet)—a mass of ruins at its eastern shoulder—An Leth-Chreag (3442 feet) to Tom a' Chòinich (3646 feet) beyond a huge hill Tuill Creagach (3452 feet), after which the ridge gradually lowers to the junction of the Cannich and the Glass rivers.

At the head waters of the Glomack, and wedged between the pass of Bealach na Sgairn and Glen Greanain on the one side, and Glens Lichd and Fionn on the other, rises the well-known Ben Fhada (3383 feet). Like Slioch at Loch Maree, this mountain's height has considerably suffered at the hands of the Ordnance Survey. It is just possible that in old days its northerly neighbour (Sgùrr nan Ceathreamhnan, 3771 feet) may have been mistaken for it. It is, however, a grand and extensive mountain, being upwards of nine miles long, and has several well-defined peaks and deep precipitous corries. Its ridge presents considerable diversity of character, the highest part being a gently sloping plateau, mostly covered with beautiful moss. From this it rapidly sharpens towards the north-west till it becomes a mere edge called Ceum na h-Aon Choise, or the 'step for one foot.' At the end of this there is a deep depression in the ridge called Bealach ant Sealgaire, 'the Hunter's Pass.' Beyond this it again slightly broadens and is excessively rugged in character. From this end of the mountain descends the deepest precipice, to the north-east, over 1000 feet of sheer descent.

South of Beinn Fhada is the long range, which, starting at the head of Loch Duich, divides Glens Shiel and Moriston on the south from Glen Affric on the north. The first part of ridge, well known to all visitors at Loch Duich, is a range of extremely steep and sharp-pointed mountains, sometimes known as the 'Five Sisters.' There are, however, six of them, and their Gaelic name is Beinn Mhor, that is, the 'Big Mountain,' in contrast to their neighbour 'Beinn Fhada,' the 'Long Mountain.' First comes Sgùrr na Moraich (2870 feet), below which is the rugged conical peak of Sgùrr an t-Searraich (1887 feet), third Sgùrr nan-Saighead (2987 feet), then the highest peak Sgùrr Fhuaran (3505 feet), then Sgùrr na Càrnach (3270 feet), and lastly the precipitous Sgùrr na Ciste Duibhe (3370 feet), the 'Peak of the Black Chest,' so called from a very deep ravine on its south-western slope. A very steep green slope descends from close under the summit into Glen Shiel, having a perpendicular height of upwards of 3100 feet.

Beyond Beinn Mhor the range continues unbroken and lofty for several miles, the principal summit being Sgùrr a' Bhealaich Dheirg (3378 feet), with a ridge like the roof of a house. Beyond Clunie the range broadens considerably and becomes more a group than a ridge. Ciste Dhubh (3218 feet), due north of Clunie, is a very remarkable hill. The top is broken into several black jagged peaks, and its lower slopes are smooth and green. From the head of Glen Lichd it presents a beautiful appearance.

East of this rises Garbh-leac (3673 feet), narrow-ridged and steep-sided. On the west side of this mountain some years ago a great earth-slip took place. It is connected on the north with the serrated and almost inaccessible ridge of Sgùrr nan Ceathramhan (3614 feet), a peak sending off long shoulders on the north and east, cut into by deep corries. The highest part of the range terminates here, the country beyond this consisting of vast stretches of moorland, and terminating above Loch Ness in the dome-shaped Meall Fuar-monadh (2284 feet), a well-known landmark.

South of Glen Moriston a similar range of moorlands divides it from Glen Garry; the highest point is Meall Dubh (2581 feet). This range may be said to terminate at the road from Tomdown to Clunie, where the country again becomes mountainous in character. It is occupied by the groups forming the Clunie and Glen Quoich deer-forests; and the rugged peaks of Glenelg and the north shores of Loch Hourn. Immediately to the west of Tomdown rise the picturesque peaks and ridges of Spidean Mialach (3268 feet) and Gleourach (3395 feet), divided by Glen Loyne from the main chain on the north, and by Glen Quoich from the almost equally lofty group of Sgùrr à' Mhoraire (3365 feet) on the west. The last mentioned rises at the head of Loch Hourn, and its shoulders and ridges, like the surrounding country, are excessively rugged and wild. The main chain to the north of these two groups runs along the whole south side of Glen Shiel as far as the Corrie Malagain Bridge.

The ridge which commences on the east in the fine peak of Creag a' Mhàim (3102 feet) continues through several rugged summits to Aonàch air Chrith (3342 feet), a very sharp-ridged mountain; from thence westward by a number of other summits more or less rough to the corrie Malagain Pass. The principal tops are Sgùrr an Lochain (3282 feet), a sharp cone; and Sgùrr na Sgine (3098 feet), with its extraordinary northern buttress, the Fraochag (3000 feet). Seen from Glen Shiel, this is one of the most peculiar objects in the Highlands, rising in a steep smooth green cone of excessive sharpness resembling a candle extinguisher. West of this is the picturesque group of The Saddle, a sharp peak with three narrow edges stretching north, east, and west. The easterly one (sometimes called 'The Devil's Acres') looked dark and jagged from Glen Shiel, a great contrast to 'The Fraochag.' Between the north and west ridges lies the grand hollow of Coir' Uaine with its deep green tarn. Above Shiel Inn is the rugged hill Sgùrr Mhic Bharraich (2553 feet), which deserves mention from an extraordinary ravine on its western face called Allt Granda. The stream takes its rise in a little lake near the summit, and a short distance from the lake it has cut a narrow and tremendously deep gash—about 30 feet wide and 200 or 300 deep —the sides of the gorge are quite perpendicular and stained black with the wet. The ledges are covered with beautiful oak and other ferns. The mountains are not so high beyond Sgùrr Mhic Bharraich, and are crossed by the well-known Mam Rattachan road, which goes over to Glenelg. The big glen of Glenelg is uninteresting and green.

The little glen, famous for its Pictish towers, has a quite different character, being narrow, and the hills picturesque and rocky. On the south side is a large group of hills culminating in Ben Sgriol (3196 feet). At the entrance of the glen rises the square mass of Beinn a Chapuill (2471 feet), a very rugged hill with a tabular top. Ben Sgriol is one of the most striking hills in this part of the Highlands; cut into by deep corries on its north side. The south face over Loch Hourn is very steep and finely broken at its base with wood and rocks. On the north shore of Loch Hourn is the long rugged and irregular ridge of Druim Fada (2327 feet); behind it Glen Dhu-Lochain cuts deep into the hills, containing two beautiful little lakes. On both sides of this glen the hills are very craggy and finely wooded with birch, the south slope of Druim Fada being similar in character.

The last range with which we have to deal commences on the west, in the district of Knoydart; between Lochs Hourn and Nevis it branches into two ridges, one of which terminates at the junction of the Kingie with the Garry, while the other forms the northern boundary of Loch Arkaig and terminates at Loch Lochy.

Commencing on the west, we first have a vast sea of hills comprising the district of Knoydart, of very rugged aspect. Beinn na Caillich (2573 feet) is the first to attract attention, a fine rugged mountain with a precipitous buttress, Sgùrr na Gabhar. Then Sgùrr Coire na Connich (2611 feet), a peaked hill over Inverie on Loch Nevis. Then Ladhar Bheinn (3343 feet), which is much the most striking mountain in this neighbourhood. It is a long ridge of irregular form, divided into two parts of unequal size by a deep beallach, that on the west being the higher. It throws out a sharp buttress towards Loch Hourn, and its east top is known by the name Stob a' Chearcaill (2760 feet). Enclosed amongst these peaks is the tremendous Corrie Dhorrcail; the precipices in this corrie are equalled by few in Scotland for height and excessive steepness. The main mass of Ladhar Bheinn presents a perpendicular face of nearly 1200 feet, serrated on the top and deeply gashed on the front. Stob a' Chearcaill and its companion peak, Stob Dhorrcail, are two of the most peculiar-looking peaks in Scotland. Smooth, hard, upright and narrow, from some points of view they appear hopelessly inaccessible. Stob a' Chearcaill has precipices on three sides and is connected with Stob Dhorrcail by an extremely narrow curving ridge. Between Ladhar Bheinn and the head of Loch Hourn and Loch Quoich, one tumbled and rugged mountain succeeds another, all presenting very similar features, being abrupt and dark, and enclosing glens some of which are filled with fine old Scotch firs. The most important tops are Sgùrr nan Eugallt (2941 feet), Sgùrr Sgiath Airidh (2933 feet), and Sgùrr a Choire Beith (2994 feet), while above Barrisdale rises Luinne Bheinn (3085 feet); rather south of it, Meall Buidhe (3107 feet) and Beinn Bhuidhe (2803 feet), above Loch Nevis. At the head of Loch Nevis rises a magnificent group of rocky peaks, comprising Ben Aden (2905 feet) showing a steep cliff on the south. Sgòr na Ciche (3410 feet) is, however, the giant in every respect of the group. Seen from Loch Nevis it rises at once from the sea with bold lines to a perfect peak. Its top is rocky and precipitous, or rather is a single lump of rock of about the size of Arthur's Seat. It preserves its conical appearance from nearly every point of the compass, though less so from the north and south. Joined with it are the Garbh Chiòch Mor (3365 feet) and Garbh Chiòch Bheag (3000 feet), also very steep and rocky. Beyond them to the east rises Sgòr nan Coireachan (3125 feet). At this point the ridge divides, the northernmost going through Sgòr Beag (2890 feet), Sgòr Mòr (3290 feet), a massive conical mountain, and Sgor an Fhuarain (2961 feet), and terminates at the junction of the Kingie and the Garry in Scour Gairoch (3015 feet), a prominent hill in all views of Glen Garry looking to the west. The southern ridge, the slopes of which are very green over Glen Dessary, go through Fraoch Bheinn (2808 feet) to Sgòr Mhurlagain (2885 feet); beyond this it broadens out into wide moorlands which terminate over Loch Lochy in the mountainous group of the Glen Garry Forest, including Beinn Tee (2956 feet), a fine conical top; Sron à' Choire Ghairbh (3066 feet), with a deep corrie to the north containing a loch; and Meall Coire Lochain (2971 feet) which also has its corrie and loch to the north. These hills are a marked contrast to the ridges on the other side of Loch Lochy, which are excessively tame and uninteresting.[1]

III. BOUNDARIES—Continued.

After leaving the Highland line at the pass between Garry (of Tay) and Truim (of Spey), and between Truim and Loch Errochd, or the Pass of Drumouchter, the dividing ridge runs up the shoulder and haunch of the Atholl Sow, and rounds the head waters of the river Tromie, which river, rising among the hills of the Gaick Deer-forest, runs then nearly north to Spey. Passing then the Col, or Pass of Stob Corrie, it again mounts the tops of Carn Ealar, by the head-waters of the Feshie, and sweeps the whole range from Cairn Toul to Braeriach, circling round the cliffs of the Garrachory and passing the wells of Dee before it plunges down to the highest point of the Learg Ghrumach (The Larig Ghru). Rising again to 3448 feet as it passes over the north top of Creag na Leacainn, it leaves Cairngorm to the west, about a mile off, and turning southwards along the ridge, the dividing skyline reaches Ben MacDhui (4296 feet), and deep below is seen the dark corrie of Loch Avon, and the chaos of 'rocks confusedly hurled' which surround and render the 'Shelter stone' so hard to find. And so on it passes by a sinuous course, scrambling among the ridges and cols, mounting the summit of Ben na Main, Beinn a' Bhuird, Ben Avon, the Great Cairn, etc. Then passes along the cols and tops of the Alsait Hill and joins the separating ridges which lie between the head-waters of the Don and Deveron—which we more carefully describe under our chapter upon the Deveron Valley.

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[1] NOTE.—The above pages, 4 to 20, were contributed by Mr. Colin Phillip for the purposes of this volume. For us to attempt to carry out such admirable and minute details, over the remainder of our skyline and watershed of Moray, could only result in signal failure: yet we must endeavour to define in some degree the further watershed commencing at the Lochs of Laggan on the Caledonian Canal.

We are aware of the imperfection of the above brief continuation of the description of our boundaries—as compared with Mr. Colin Phillip's able contribution to our pages, but we have less hesitancy in leaving a portion of it imperfect, because Mr. Geo. Sims's personal inspection of the watershed between 'Dee' and 'Moray' will, we expect, make up for all deficiencies in this respect when he comes to treat of the Faunal area of Dee—a volume, the MS. of which is presently being prepared.

GENERAL REMARKS DESCRIPTIVE OF THE WATER SYSTEMS AND TOPOGRAPHY.

Having disposed of the natural boundaries and treated of the encircling rim of its watersheds, we now shortly specify the principal water systems so enclosed.

The whole area may be described as consisting of great fresh-water systems, and one large marine area. Commencing in the north we have the coast-lines and rivers of Sutherland and the Dornoch Firth. Then comes the Conon and the Beauly basins, and the great area of the Ness watershed, with its large lake and separate river systems. South of Inverness we have the Findhorn, the Nairn, the Spey, and the Deveron, and the coast-lines as far east as Cairnbulg Point. Greatest of these river valleys is the Spey, finding its sources in the extreme south-west of the area, and after a pretty straight and wide course, running into the Moray Firth at Kingston. Spey touches hands as it were with the drainage systems of Argyll in the west, with Tay, and, by its tributaries, with Dee, and is itself divided into sections geographically recognised as Upper and Lower Badenoch, Strathspey, and Speyside.

Shorter in their courses, yet rivers of considerable volume and drainage areas, are the Deveron on the north-east, and the Findhorn on the north-west of Spey. The Findhorn is separated from Spey by the southernmost spurs and ridges of the great Monadhliath Mountains, and the lower Carn-districts which lie around the middle reaches of Dulnan and Findhorn; runs a course nearly parallel with Spey—but having the Dulnan, a tributary of the Spey, between—and finds its rest, after tumultuous ravings amid the romantic rocks of Sluie, in the shifting sands and silting shoals of Findhorn Bay below Forres.

The Moray Firth constitutes the marine area. This is a great area of sea which may shortly be defined as lying altogether to the westward of a line drawn from the Point of Cairnbulg near Fraserburgh, in a direct course to the Ord of Caithness, or even, in a still fuller acceptation, as far as the north-east point of Scotland, at Duncansbay Head. But for the purposes of this volume, the area is restricted to include no land which drains into it any farther north than the boundary of the drainage area south of the Ord. Later, under Faunal Position, we will again have occasion to refer more pointedly to this marine area.

PHYSICAL FEATURES.

I. COAST-LINE AND RIVERS OF THE EAST OF SUTHERLANDSHIRE, WITH A SHORT DESCRIPTION OF THE SURROUNDING COUNTRY.

THE Sutherland coast-line is, for the most part, of a sandy nature, the links extending from near Helmsdale to Dornoch. Beyond Helmsdale on the north up to the Ord,—where one of the few eyries of the White-tailed Eagle on the east coast of the British Isles used to exist—the coast-line is high close to the sea, and consists of clayey, red-coloured banks covered with grass, and a shingly beach. South of Helmsdale rocks jut out here and there, as at Port Gower, Crackaig, and Brora; and from Strathsteven to Golspie the shore consists largely of shingle. Behind this line the hills, which at Helmsdale rise close to the sea, recede somewhat, and between them and the shore-line lies the greatest extent of arable ground in this part of the country, interrupted here and there either by plantations or some small pieces of uncultivated moorland. This cultivated area varies much in breadth, nowhere being much broader than two miles between the sea and the foot of the hills, and a great part of it is occupied by small farms and crofts, except on the south side of the Little Ferry, where, from the absence of hills, the district around Dornoch is almost wholly arable.[1]

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[1] In an article in the *Land Agents' Record* (issued weekly at 75 Fleet Street, London), February 1, 1893, on 'Notable Estates,' Sutherland, it is said that:—'The arable farms are limited to the Dunrobin district, which extends over eight parishes. In these parishes there are forty-eight arable farms of various sizes, sixteen of them extending from 250 to 500 acres each, and the whole to an area of over 8000 acres. Many of these farms have considerable outrun pasture attached. The soil varies from light sandy and black loam to medium clay. The farms are generally worked on the most advanced principles, and excellent

Bird life is abundant all along this coast-line. Terns, Ring Dotterels, Oyster-catchers, and Shell-drakes breed on the shingle, or in the sand-hills, and where there are convenient cliffs the Jackdaws have taken possession.

Seals are not infrequent along the coast, the Great Grey Seal haunting the few rocks there are; and the firths of the Little Ferry and Dornoch are rarely if ever without their less bulky relations, *P. vitulina.*

Between Brora and the Mound the hills facing the sea are wholly covered with plantations consisting principally of Scots fir; and on a lower level, close to the sea and the village of Golspie, the white towers and building of Dunrobin Castle are seen rising through the surrounding woods. Some of the trees close to the castle are of goodly size, but the east wind and the sea spray have a dwarfing effect on much of the immediate woods.

At one time one of the finest farms in the country, that of Crackaig, between Brora and Helmsdale, was nothing more than a marsh, formed by the Lothbeg river, which spread itself out on this flat, and entered the sea about a mile and a half to the north of its present mouth. One of the former Dukes of Sutherland cut through the soft rock, and made the present exit over which the railway arch now is, thus reclaiming a large extent of most excellent land. A small canal is kept open at the bottom of the hollow to let off any surplus water, and this represents the old course of the river.

The sandy nature of the beach extends round the Dornoch point almost to the Meikle Ferry, the area being greater here than any other part of the coast. West of this again, parts of the shore are rocky, with stones, mud, and sea-weed, and in many of the muddy bays and inlets wild-fowl abound in winter. The cultivated area is not so large around Spinningdale, plantations there occupying more space. These are composed mostly of fir, though at Spinningdale and Creich there is a considerable

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crops of grain (barley and oats), turnips and grass, are produced. The five-course rotation was, till the last few years, invariably followed, but of late the six-shift has become common.

extent of natural oak. The hills come nearer the sea here than farther east, and these are in great measure covered with the usual Scots fir plantations, which stretch almost continuously to Rosehall, the only break of any extent being between Balblair on the east, and the Linsett woods on the west, of the Shin valley, though even here the line of wood is continued by some patches of oak, probably natural.[1]

The Dornoch Firth itself is one of the largest inlets in our area, and extends for fifteen or sixteen miles up to Bonar Bridge, where the Kyle begins, and the tide affects this up to Invercassley, some nine or ten miles farther up. It is navigable, and that for small crafts only, to a little below Bonar Bridge, the vessels grounding and discharging cargo in that position. Before the railway was made, the only bridge crossing the Kyle was at Bonar Bridge (which was carried away by the great floods of January 1892), the only other means of transit being by crossing the Meikle Ferry, on the road between Tain and Dornoch.

On a fine June day, the view, looking up the firth, even from the train, is very beautiful indeed. The hills on either side are clothed with heather and the dark firs; the lower ground, yellow with the whin and broom blossom, one mass of glory; and the green fields of the cultivated ground, with the blue waters of the firth, give as fine contrasts of colour as one can well meet with in the Highlands. Two prominent objects are the point at Spinningdale and the rock called Dun Creich. On the top of the latter is a vitrified fort: the rock itself is very steep and descends abruptly into the sea.

There are five rivers of importance in this part of our area—

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[1] In the article just mentioned it is said :—'The woods and plantations are almost entirely confined to the parishes in the Dunrobin district. They extend to 11,000 acres, exclusive of natural birch woods, and yield a fair revenue yearly. They are composed mostly of Scots fir, with some larch and spruce intermixed. Near Dunrobin there is a considerable area of hardwood, part of the wood growing down to the very sea edge. The sales are principally confined to Scots fir, which is purchased by merchants, sawn in the plantations, and disposed of chiefly as railway sleepers and herring barrel staves.'

At p. 155 of the Highland and Agricultural Association's Prize Essays, vol. v., 1837, Mr. Dempster writes that he planted over 11,000 acres at Skibo 'within the last five years.'

viz., the Helmsdale, Brora, Shin, Cassley, and Oykel; and there are also other three that deserve notice—the Lothbeg, Fleet, and Evelix; and we now proceed to take these in the order given, as also to give some description of the surrounding country, which together will, we hope, convey a fairly good idea of the physical features of the Sutherland division.

The Helmsdale is the first in every way, from its size and large drainage area, not to mention that it is the best angling river in the north. Its head-waters are the large chain of lochs consisting of Truid Air Sgithiche, nan Cuinne or Rumsdale, a' Chlair, Baddan, and na Moine on the main branch, and Leum a' Chlamhain, nam Meann, An Ruathair, and Araich-lin on the other. It has two affluents of considerable size—viz., the Free and the Craggie, both running in from the right-hand side, the first at Borrobol, and the second below Kildonan.

The largest hills in this drainage area are the two Bens Griam, striking objects when first seen as one proceeds up the Strath, rising, as they do, from the vast stretches of flow-lands that surround them. A great part of the catchment basin consists of long flats of this flow-ground, with undulating moorland, the heather being, for the most part, better on the north-east side of the river than elsewhere. Before passing down the strath, we should mention that this district is probably now the only place in our area where the Wild Goose (*Anser ferus*) still exists as a breeding species.

It is in this neighbourhood of Kinbrace that the late Duke expended so much money in trying to make arable farms. But nature was against him, the climate being rarely equal to ripening grain of any sort, and though good crops of turnips and some hay can be grown, little else can be done; indeed, about Badenloch nothing is attempted in the large parks there, which are rapidly degenerating even in their grazing capabilities.[1]

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[1] To quote still further from the excellent article already mentioned:—

'The reclamations were mainly confined to the parishes of Lairg and Kildonan in the Dunrobin district.

'The work and extent of the reclamations have been fully described at different times, and also the object which the late duke had in view in entering

A considerable part of the ground immediately along the river banks consists of grassy haughs, more especially below Kildonan, and these being periodically flooded, are kept all the cleaner and sweeter for the sheep to graze upon. At two places, between Borrobol and Kildonan, and, again, at and below Torrish, there is a considerable extent of birch wood, but there are no plantations of firs worth mentioning.

Almost the whole course of the river is gravelly, which may well account for the amount of salmon bred there, as this affords the fish most excellent spawning ground. There is one long stretch of rocky ground, from the head of Suisgill water to the bottom of the Kildonan beat, and many excellent angling pools are thereby formed.

The strath is mostly wide and open, with the exception of the last four miles from Torrish to Helmsdale, where the hills rise to a considerable height and very straight up from the river, making this portion of it cold, comfortless, and sunless in the winter.

Besides the two Bens Griam already mentioned, there are only two other hills of much importance on the watershed, namely, Ben Duan, which, looked at from the south, has a long, narrow, ridge-like appearance, like the top of a house, the likeness further increased by a little knob at each end, like the commencement of chimneys. The other is Ben Uarie (1923 feet), from its steeper

on them; and here, therefore, it may be sufficient to state that there were reclaimed and laid out in farms of various sizes:—

In Lairg parish	1923 acres
In Kildonan parish	1315 acres
Total	3247 acres

and that the cost was little short of *a quarter of a million pounds.*

'But, unfortunately, this huge undertaking has only served to prove that the forces of nature will not in all cases be made the servants of the steam plough and its following; and what should have been, and was intended to be, a large improvement and benefit to the county and its inhabitants has proved a *failure*, both as regards the land itself and return for the money expended. Now (1893) only about 750 acres of the large area reclaimed is under cultivation, much of it having fallen back to its natural condition. Experience has proved that, without a very great change in climate, cultivation in such high-lying and exposed districts as those where the reclamations were carried out cannot be made profitable, however highly fancied the land may be.'

incline and more commanding appearance looking much higher and grander than its really higher but gentler-sloping neighbour, Ben Veallich (1936 feet).

Some of the upper parts of this drainage system are the dreariest-looking of countries, perhaps none more so than the flows at the foot of Ben Griam Bheag and around Loch an Ruathair, and, again, round the upper reaches of the tributary Free. But they are, all the same, of great interest to the naturalist in the summer, as this country is a great breeding-ground of the Greenshank and the Wigeon, besides many other interesting species, while in the autumn these flows are resorted to by the deer, after which the sportsman will have many a wet and close crawl before he can hope to get a shot.

Next in order and importance comes the Brora, as well from an angling point of view as from its size, for, though the Shin has the larger drainage area, we doubt if it yields anything like the number of salmon. The Brora itself rises in the parish of Rogart, and is of small importance in comparison with its larger affluent, the Blackwater. Except in the very uppermost reaches, there are few pools of any importance, it being more a rapid, strong stream than a river. It drains a large part of the parish of Rogart, a country studded with many lochs and numerous small hills.

In its lower reaches, the Brora, immediately before it is joined by the Blackwater, is very prettily wooded, the banks being clothed with birch-trees, some of them very old, and also alder-trees.

The Blackwater is really the main river, and has its origin in the hills of Ben Armine. There are no lochs of any importance throughout its whole length. It has two branches, but while one runs through a comparatively hilly country, the other winds its way through some most desolate, flat, low-lying country until its junction with the first.

Like its sister river the Helmsdale, the Brora throughout most of its length has a gravelly bottom, but, from Pollie to Balnacoil, the course of the Blackwater is almost wholly rocky. The greater part of this rocky bed lies between the falls at Achness and those at Balnacoil, and here the river is in many places inaccessible. It is also reported that the fish, even in those pools that are get-at-able, will not take a lure of any kind; we certainly never took one nor rose one though trying it on several occasions; they do, however, rise at times in the pool immediately below the falls at Achness. We mention this here, as in our experience fish rarely do rise well in streams whose sides are wholly shut in with high rocks.

Some distance below the junction of the Brora and Blackwater the united waters run smoothly through grassy haughs into Loch Brora, which is almost four miles long. The scenery here is perhaps the most beautiful of any on the east coast. At the head of the loch is a wood of mixed birch and alder, the haunt of many ducks, and here we have seen a great number of Wigeon, once about thirty drakes all together, and this in the breeding season. On the right-hand side of the loch is the fir wood of Ledmore, and lower down the rock of Carral rises almost straight out from the water, its lower slope covered with birch and rowan trees, whose fading leaves glow in the autumn with beautiful red and russet brown tints.

On the left hand is the birch wood of Greeanen, then the comparatively old fir wood of Gordonbush,[1] on a rise in which nestles the beautiful shooting lodge, and beyond that a long stretch of birch wood extending the whole way along the hill-side. After leaving the loch the river runs through a most uninteresting country, mostly arable, though some of the best early spring pools are situated here, past the Brora coal pit, and enters the sea at the little fishing village of Brora. Nearly the whole of the river below the loch runs over a stony or gravelly bottom, and affords good spawning ground for the salmon.

There are no hills of any great height or importance in this area, with the exception of Ben Armine, with its two not very distinct hills—Creag Mhor and Creag Beg. It is a green hill, and the whole of it is under deer. Eagles and Peregrines breed there regularly and are fortunately preserved. Above Gordonbush the peculiar conical hill of Beinn Smeoral rises (1667 feet), and a little to the east is Kollieben, cold and damp on the north-east, drier and with rocky terraces on its south-western side. This latter

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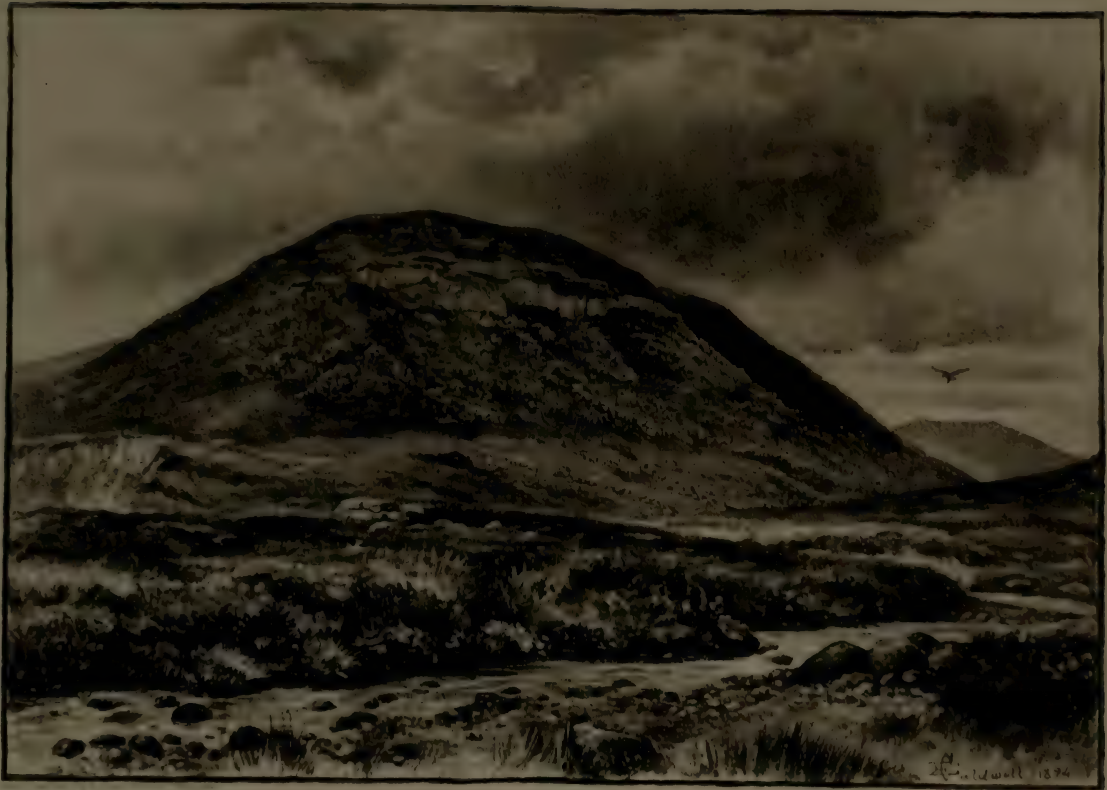
[1] Since much damaged by the gale on November 18th, 1894.


Caldwell 1894

LETAL CAIRN, GLEN LOTH, SUTHERLAND

hill is the source of Clynemilton burn, worthy of mention here as a stream of most beautiful spring water, not a common thing on the east coast of Sutherland.

Between the Brora and Helmsdale there is the small river of Lothbeg, which rises in the Meallan-liath, and runs through Sletal and Glen Loth into the sea by an artificial cutting on the south side of Crackaig Point. This little river runs through the wildest and finest scenery on the coast. Sletal was an ancient deer forest, and the cairn under Craig-vockie was the last stronghold of the wolf in Scotland. It is a wild confused mass of rocks, many of them now overgrown with moss and blaeberries, and years ago the rock above was tenanted by a pair of eagles; even yet, these birds are occasionally seen in the autumn, and though no longer a forest, a few deer are still to be seen in their ancient sanctuary. Lower down where Sletal joins Glen Loth, the strath opens out wider and is more bright and sunny, patches of birch occurring here and there, while nearer the sea the course of the river is enlivened with whins and broom, bright with yellow in the flowering season.

Before this cutting was made, the river ended in a marsh, where the fine arable farm of Crackaig now is, the water finding its exit to the sea at a point below Kilmote, and between it and Crackaig Point, to which we have already alluded.

The Fleet is a small river and of little interest or beauty in its upper reaches, where indeed it more resembles a drain than a Highland burn. The strath, somewhat narrow in its upper reaches, opens out wider about Rogart village, below and around which the land is more cultivated. There are some patches of birch scattered here and there, but, with one or two exceptions, little or no planting has been done until the sea side of the Mound is reached. Below Morvich the river forms a large marsh covered with alders, and below this again, crossing from side to side, runs the Mound, an artificial dam which separates the estuary of the Fleet from the reclaimed land, and over which the road to Dornoch runs. Sluices are let into the Mound near the railroad, where the river enters the estuary to allow the surplus river water to run out as the tide recedes, and prevent the sea water getting in with the flood tide, though some does enter, as is apparent from the sea-weed growing in the big pool above the Mound.

The river is a great resort of sea-trout and it is probable that many of these fish live altogether either in the estuary or at the mouth of it, as they are to be seen here the whole year round: doubtless the feeding is always good in such localities. Besides sea-trout and salmon, large shoals of mullet are found in the quiet and muddy bays between the Mound and the Little Ferry. The upper part of the estuary is well wooded on both sides; on the north with old plantations of Scots firs, and their dark green foliage contrasts well with the water of the firth. In the distance, on the south side, the pretty shooting lodge of Cambusmore is seen lying among the birch woods at the foot of a steep rock, which annually yields a pair of Peregrines. Nearer the sea the coast is entirely composed of sand and shingle, where multitudes of rabbits, and, in the summer, sea-birds, abound. At its mouth, below the Little Ferry, the estuary is greatly contracted, and the tide runs through this narrow passage with great force.

Before passing on, we should make mention of one of the tributaries of the Fleet, the burn coming out of Loch Buidhe and running down Strath Carnach. Here a very extensive salmon ladder was put up by the late Mr. Bateson, at one time lessee of the Cambusmore shootings, and which, in his time, was kept in good working order.

Below the Mound, and about half-way down to the Little Ferry on the south side, there are some large stones standing close to the deep channel of the Firth; here there is a salmon cast which was constantly used in former days, and where, at certain times of the flowing or ebbing tide, salmon and grilse are even now often caught in the salt water.

Of the Evelix there is not much to be said. It is a small river rising in the moors behind Ospisdale, and flows through the highly cultivated districts of Skibo and Evelix. We are informed that both salmon and grilse ascend it: they are, like the river, of small size, and perfect miniatures of those of the larger rivers.

From the mouth of the Evelix to that of the Shin the distance is some twelve miles along the Dornoch Firth and the Kyle of

Sutherland. A rapid sketch of this country will be found where we have described the coast-line and the Dornoch Firth.

The Shin is remarkable for the shortness of its course, and the great length of the loch out of which it flows. Lochs Merkland and Griam are also connected with Loch Shin in the north-west, so that the water area itself, of which the river Shin is the outlet, is of great extent. The drainage area on the west of Loch Shin is very narrow indeed, and there are no burns of any importance; but on the east this area is much larger, and the rivers Fiack and Tirry flow into it from this side. It is a wild stretch of moorland this, with much flow ground dotted with lochs and brulochans, the haunt of Greenshanks and Red-throated Divers.

Along the east side of Loch Shin lies Shin'ness, famous as being the first place where the late Duke commenced his experiments in making the Sutherland reclamations. They have succeeded here best of all, though they produce a sorry return for the immense amount of capital expended. What planting has been done has also been largely a failure, and that this should be the case is the more difficult to understand, seeing that at one time the greater part of the county was covered with trees.

In former years White-tailed Eagles bred on an island in Loch Fiack, as also they did on Ben Hee, as related in the *Oothcca Wolleyana* (see under the species). Wild Geese also bred here, but seem to have now quite deserted the locality. Many of the smaller burns running into Loch Shin from the west are lined with birch, but there is comparatively little wood along the loch. The river, from its leaving the loch down to Achany, is wide and stony; but shortly after that, from the falls down to the Kyle, it is wholly rocky and very narrow in places, and thus, once the reservoir lochs are full, holds its water much longer than most rivers. At Achany and about the Lairg station there is a great extent of fir plantations. Lower down, the sides of the river are clothed with birch and rowan trees, which give most beautiful tints in the autumn season.

Crossing the hill by the mail road from Lairg, over some very good grouse ground, we descend rapidly down to Rosehall, so well known to readers of St. John's books. It has changed much since his day. The estate has been divided into three, and much of the old Scots fir wood has disappeared; but the younger wood is growing up, and thus the physical features still remain the same, beautiful as ever.

Nowhere very wide, the Cassley river has no important tributaries, and soon runs down after rain, the burn that comes down Glen Muic being the largest affluent.

The river rises in the Gorm lochs that lie along the northern base of Ben More; these lochs are well known for their trout-fishing capabilities. The river, through its upper course, has a gravelly bottom, running through green haughs for the most of its middle course, but very rocky between Glen Rossal and Rosehall, where there is a rather stiff fall for the salmon to ascend, but very pretty withal. Except in the middle reaches, the banks and slopes of the hills are well clothed with birch wood, and indeed, to our mind, there is no prettier bit of Highland glen scenery on the east coast than that about Glenrossal, although on a somewhat small scale.

The distant views of Ben More and Breabag, on a fine day, are magnificent, and not to be surpassed in the east of the county; but of other hills through all this district there are none of importance. Ben Skerrach on the north, and Ben Eoin on the south of the strath, and nearly opposite each other, being the highest; and the only lochs, besides those already mentioned, are Loch nam Fuar-Leac, na-Caillich, Skerrach, and na-Faichde.

The Oykel is the last river in the county. It rises from the southern side of Ben More and Breabag, passing through Loch Ailsh on its way. The country it drains is wide and open, and the moors through which it passes were at one time as good as any in the county for grouse, but for many years back they have given very moderate bags. This moorland stretch is more undulating than hilly, and is generally dreary and uninteresting. The river abounds in Sea-Trout and Grilse, and at one time these used to be caught in great numbers at the Falls at Oykel Bridge, in a landing-net, by a man stationed there for the purpose.

Shortly below Oykel Bridge the Oykel receives the waters of the Einig—a small river noted for the beautiful shape of its fish—and, after passing under a high hill whose sides are clothed with birch, makes an abrupt turn through a very rocky bed, and opens out into the strath, where there is a long green level and the dreary-looking shooting-lodge of Langwell. Between here and Invercassley the tide affects the river, and, shortly below, opens into the Kyle. Above Invercassley are a few gnarled and twisted Scots firs, probably the oldest trees in the county of Sutherland. Much of the river side and the slopes adjacent are well wooded, mostly with birch; but there are a good many oaks, some of considerable size, and, along the river side, some alders. With the exception of one patch above Oykel Bridge, there are no fir plantations in this valley until the Rosehall woods are reached.

II. SOUTH SIDE OF THE DORNOCH FIRTH, THE COAST-LINE TO INVERNESS, AND THE ADJACENT COUNTRY.

Commencing at Oykel Bridge, we find the river Einig running into the Oykel about a mile below the bridge. The latter part of the river's course is very rocky, and the banks for some considerable distance are clothed with natural wood, including some Scots firs. Continuing south-east along the Kyle of Sutherland the land is highest a little below the junction of the two rivers and above Langwell, gradually sloping down to Inver-Oykel House, or Ochtow, as it was formerly called. Here the hills present a gradual slope backwards, and a little below this the valley of the Kyle is broadest, and is bordered on either side by meadows which are subject to more or less frequent inundations; these meadows give good annual crops of hay. Towards Culrain and Invershin the slope of the hills is more abrupt, and a large area is under plantation; just above Culrain is a small raised plateau containing some fairly good land, on which there is a farm. At Invershin the Kyle is very narrow, the ground rising abruptly on each side, and here it is crossed by the Sutherland railway. Passing Culrain there are a few crofts and some small patches of natural wood; and at the mouth of the Carron below Ardgay a large area of good land on the Invercarron estate again narrows the Kyle, where the road from Ross-shire to Sutherland crosses it by a handsome bridge, which has replaced the old one that was carried away by the extremely high floods of January 1892, which did so much damage in the north.

The southern branches of the Carron river just mentioned drain the forests of Diebidale, Alladale, and Glen Calvie, uniting near the shooting-lodge of Alladale, and lower down, close to Amat, join the northern branch, the Blackwater. The Blackwater flows for a considerable distance through the Braelangwell shootings, and is a dead, dark, peaty-looking stream. Below the Amat Falls the river is more rocky, with many good pools, and altogether has a more sporting appearance. For the last mile of its course it is extremely shallow, and, from there being no lochs near its source to retain the water, it rises and falls very quickly.

Between Ardgay and Edderton the hills rise to a greater height, and a very large area has been newly planted. Indeed, the woods (and these all planted within the century) are now almost continuous from here to Inverness. These woods do not extend up the hillsides, nor indeed inland, for any great distance, except up some of the warmer straths—as that of the Conon, for instance—but we have no information as to what height trees can be planted with any chance of thriving, exposure and soil having so much to do with this.

At Fearn, and just below the shooting-lodge, there is a tidal loch, very shallow and muddy, where generally a few wild-fowl are to be seen, and numbers of Water-Hens. No fish except Mullets live in the loch, any unfortunate Sea-Trout that gets in generally being found dead. South-eastwards as far as Edderton the coast-line and adjacent country are covered for miles with whins and broom, which in summer are one glorious mass of yellow flowers, a truly beautiful sight, and the air is almost sickly with their scent. At Edderton are several good farms and a large extent of cultivation, which runs far up the valley formed on the west side by the Struy range of hills, and on the east by the hill of Tain.

Between Fearn and Tain the traveller by rail may see thousands of wild-fowl in winter, sitting on the water only a few hundred yards from the line, taking little notice of the train; while in the distance out to sea a line of white breakers proclaims the situation of the sandbank called the 'Gizzing Briggs.'

At no great distance of time back the greater portion of this country between Tain and Portmahomack was a wild waste covered with heather and broom, but this is rapidly disappearing before the plough. The coast-line is composed mostly of sandhills, but inland, behind the Morrich Mhor and the Fendom the ground is more marshy, and there are one or two lochs, that of Slynn being the largest and a great resort of wild-fowl; it contains no fish but eels. About Rhynie the ground is marshy, and ducks breed there, as also Snipe.

From Tarbert Ness to the East Sutor[1] the land rises along the coast, at one place to an altitude of 658 feet, but slopes back rapidly inland to almost the sea-level. These higher slopes contain a certain amount of heather, in which a few grouse are to be found, and, besides, are covered with a great extent of whins, especially in the neighbourhood of Castle Craig, and these are the resort of innumerable Rabbits; in former years Badgers were not uncommon, and even Foxes were found there. In the lower grounds, Partridges, and Hares of calf-like proportions (if we may believe the natives' description!) are abundant.

The coast-line westwards from Nigg terminates in that headland at the mouth of the Cromarty Firth called the East Sutor. This is tenanted by a number of sea-fowl, and we are indebted to Mr. J. G. Millais for the following notes, which he made during a visit from Fort-George in May 1890:—

'Cormorants, in very large numbers, were breeding well up the face of the cliffs, their nests being perfectly inaccessible.'

Mr. Millais was much surprised at seeing the Green Cormorants here, as it is much south of their limit on the east coast of Scotland. Not a single adult bird was seen; they were all in parties of from ten to thirty, and were evidently *not* breeding in the cliffs.

Rock Pigeons were very scarce, and only a very few pairs seemed to be breeding; they were said to come in numbers to the caves in autumn. (A curious fact this—where could they come from ?) A single Peregrine Falcon passed over the boat about two hundred yards off, going up to the cliff; it appeared to be an adult female. Mr. Millais doubts if the species breeds there, as a local man he took from the shore, who knew the cliffs well, said he had not known of their breeding there for some years past.

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[1] Always called East and West Sutors by the natives; but then Highlanders have no north or south! The East is the North Sutor, and the West the South!

No Ravens were seen, nor could Mr. Millais hear of their having been seen there for a length of time.

The Great Black-backed Gull was evidently breeding in fair numbers on the tops of the isolated pinnacles, but their nests are extremely difficult to get at. Mr. Millais was four hours on one pinnacle before he could get down.

The Herring Gull is *the* bird of the Sutor. It breeds in immense numbers, and from one small stack a cart-load of their eggs might have been taken, but the cliffs are dangerous to descend, though the ascent here and there is comparatively easy. Guillemots and Razorbills were in scattered numbers.

Towards Fearn[1] and Nigg, which lie about the centre of the depression between the inward range of hills and those of the coast-line, the ground would appear to have been reclaimed and drained from a former state of bog and marsh, and at the present time no finer arable ground can be found in Scotland, as may be seen from the splendid wheat and other crops requiring heavy soil which are grown there. Evidences of this marshy character are to be found in a few small bogs, and the sedges (?) which are to be seen growing in the ditches through the fields; and here is one of the few places where the true bulrush is to be found in the north. Half a century ago magnificent wildfowl-shooting could be had here on stormy days, when the birds were driven between the Dornoch and Cromarty Firths by stress of weather; now they have been taught by sad experience to keep out of range, but still there is good flighting at times about the Hill of Fearn, a small rise in this otherwise very flat extent. Very good Partridge-shooting might be got were the whole country well preserved, and the Hares hereabouts are noted for their size.

Although there are a few burns and lochs in this district, yet want of water is a great drawback, and, from the flat character of the country, few houses can be supplied by gravitation, pumping from wells being the only (and very laborious) way of supplying the cisterns.

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[1] Not to be confounded with Fearn in the Dornoch Firth, near Ardgay.

Along this coast-line, from the Carron to the Alness, there are no rivers of importance, and only a few burns of any size, the Balnagown river being the largest—the water-supply of even a small town like Tain being a matter of consideration, so scant is the amount available. The hills on the east side of the road between Struie and Alness range from 600 or 700 to 1000 feet in height; they are mostly very dry, with few springs, yet Grouse do well on them, and they are admirably adapted for planting, and many of them have already large extents of thriving firs.

The whole of the land adjoining the coast-line, as far as it can be so utilised, is cultivated, and with very good results in most cases. This belt is of a very good average width, being only interrupted to any serious extent at the hamlet of Clachnaharry, close to Inverness, where the sea comes up very close to the foot of the hills. Up the valleys of Strathpeffer, Beauly, and the Conon, arable land extends for a long distance, though in the case of the Beauly much good land was temporarily injured by the disastrous floods of January 1892.

Most of these valleys contain magnificent trees of both hard wood and ornamental pine—not merely the monotonous squares of Scots firs—especially in the policies of the older mansion-houses, such as Balnagown, Conon, Beaufort, etc., and perhaps there are no finer ones than those about Castle Leod, the climate and soil of Strathpeffer being apparently well suited to the growth of these forest giants. Almost every description of tree is to be found about the old castle, itself an object of the greatest interest, with its ivy-clad walls. It is one of the oldest inhabited houses in the north, and, from not having been added to, its old characteristics are very easily seen.

Between Nigg on the north side, and Fort-George on the south, the sea makes two great semi-circular sweeps inland, the northern one forming the Cromarty Firth, which trends south-west, and the southern one, trending south-west and west, forms those of Inverness and Beauly. At their inland termini the heads of the Cromarty and Beauly Firths are only some five miles or so apart, and the peninsula thus formed is called the Black Isle, of which more hereafter.

The entrance to the Cromarty Firth lies between the two Sutors, and is very narrow, widening, however, almost immediately on the north side into the bay of Nigg, which runs inland for a considerable distance. This bay is very shallow, and at low tide the firm sand of which it is composed is used as a convenient road between the promontory of Nigg and the mainland.

Immediately after passing Nigg Bay the Firth narrows, and at Invergordon is crossed by a ferry. Here the water is very deep and the anchorage good, as is evidenced by the fact that the Channel Fleet has visited it on two or three occasions, and just outside Cromarty is a very favourite anchorage for wind-bound vessels. Farther up, the Firth is only navigable for small trading vessels, but here its character is more that of an estuary than a sea loch. The shores are mostly muddy flats, yet the number of wading-birds is surprisingly small, except in the early autumn. Forty or fifty years ago, the Cromarty Firth was the resort of quantities of wild-fowl, and even yet a great number of ducks are got there, but the number of punt guns which, any night that is suitable, may be heard booming away, has driven them off to other less disturbed districts. Between Fowlis and Dingwall the shallow water is often covered with diving ducks, mostly Scaups, apparently. Seals are rare, though we have seen one now and then, resting on or swimming about some large rocks which lie between Fowlis and Kiltearn Point.

Between Nigg and Dingwall the Alness is the only river of any importance that enters the Firth. It rises on the borders of the Diebidale Forest, flows through Loch Morie in the Forest of Kildermorie, and enters the sea below Alness, passing Ardross on its way. A considerable number of Salmon and Sea-Trout frequent the river, but it seems of little account from an angler's point of view, partly on account of netting at the mouth, and more than probably from poaching.

Close to Stittenham, near Alness, is the small loch of Achnacloich, which contains some good trout. At one time, we were informed, Sea-Trout had access to it from the Balnagown or Strathrory river, which flows past Scotsburn and Balnagown Castle and enters the Cromarty Firth below Tarbat House, but that the burn leading out of the loch into the river having been diverted to supply water to Kindeace House, they can no longer get into it. Sea-Trout are fairly numerous in the Strathrory river, and an occasional grilse also at times finds its way up.

Next to the Alness in importance is the Allt Graad, which, though little more than a burn in appearance, yet nearly always contains an abundance of water. This is easily accounted for by its being fed by Loch Glass, a dark, gloomy loch lying under the north shoulder of mighty Ben Wyvis, the highest mountain (3429 feet) in this part of our district. This burn is more celebrated for its beauty where it flows through the celebrated Black Rocks at Evanton than for its angling, for though a few Salmon and Sea-Trout enter its mouth, they are woefully poached. Like the Alness just described, the Allt Graad runs into the Cromarty Firth on one side of the Balconie estate, which is bounded on the other by another burn of some size, the Skiack, which rises in the moors beyond Milton and under Ben Wyvis, and thence runs through the cultivated area of Swordale and Fowlis. Except that a few Salmon enter the mouth late in the season, the Skiack possesses little or no attraction, as the country through which it runs is uninteresting.

Strathpeffer has become so well known through its Spa that little need be said of it here. It is a beautiful strath, well cultivated throughout the whole of its length and breadth, and the views of Ben Wyvis, and away eastward to the Black Isle are very fine when seen from the grounds of the Ben Wyvis Hotel. On the hill immediately opposite to, and again beyond, are vast areas of young plantations, and the open spaces are covered with whins and bracken. On the south-east side, at the foot of the strath, rises the steep rounded hill of Knockfarrel, and from not as yet being much planted over, the contour lines are very well seen.

On the other side of the strath lies the well-wooded estate of Tulloch; much of this wood consists of hardwood. The bottom of the valley is flat, and the Peffery burn runs through and drains it all.

Not far from the head of the glen is the pretty reedy loch of Kinellan, in which are numbers of Coots, Water-hens, and Wild Ducks, and also a colony of Black-headed Gulls; it lies just on the watershed between the Peffery and the Conon.

The flats about Dingwall are composed of rich heavy soil, which continue all the way to the Conon river. Crossing the river, however, the ground to the Muir of Ord, on the Inverness-shire march (for, so far, the country we have been describing lies wholly in Ross-shire) is, for the most part, sandy and gravelly. Trees of all kinds grow in it, both soft and hard wood, judging from the well-kept woods near Conon House, through which the railway runs.

From the line, the view looking up the valley of the Orrin branch of the Conon is very remarkable. Numberless rugged-looking hills, apparently of no great elevation, dot the middle distance, rising in the farther distance to the high summits of the watershed.

The gravelly bank just mentioned would appear to occupy the rising ground of the neck of land that connects the Black Isle with the mainland, but on either side the lower-lying ground is rich and heavy.

Entering Inverness-shire from the north, and looking south and west, the whole country appears richly wooded. Near hand is the thickly planted hill of Farley. Far in the distance rise the high, rugged, peaks of the interior of the county, and in the near vicinity lies the beautifully wooded valley of the Beauly with its varied scenery. Eastward, a splendid view is obtained of the Beauly Firth and the far away shores of the Moray Firth, while on the left hand lie the shores of the Black Isle, terminated in the whin- and fir-covered hill of Craigton.

From this point, too, nearly the whole way to Clachnaharry, there is splendid arable land, more especially about Clunes and Lentran; above this is a broad belt of woodland, and then the open moor. Near Moniack Castle is a deep depression, evidently the old bed of a loch; this is now all drained and cultivated, a small burn running through the middle of it. The rock shows through the hillside hereabouts in many places, proving the thinness of the soil, and broom and whins grow freely.

The Beauly Firth abounds in wild-fowl and wading-birds of various species, and the sandbanks at low water are resorted to by numbers of seals, which constitute a source of annoyance and loss to the salmon-fishers in the Firth. Much of the land about Clunes would appear to have been reclaimed from the sea, as a substantial embankment, here and there edged with piles where most exposed to the action of the water, and on the inside a deep ditch, seem to denote. On the mud nearest the land, a species of grass (?) about a foot high grows, and, during the early autumn, affords a holding place for a number of Water-hens and a few Snipe. Almost on the very shore, and near the station of Lentran, is a splendid spring of fresh water.

Below Clachnaharry, and near the mouth of the Ness, a point runs out into the Firth, where Kessock Ferry is situated, and the tide runs here with great force. Numbers of Guillemots and Razorbills at times haunt this neighbourhood, attracted, no doubt, by the garvies as well as small herrings, the catching of which fish is an industry to a good number of boats, the fish finding a ready sale for the southern markets.

III. THE BLACK ISLE.

The Black Isle, as it is locally called, is that part of Ross-shire which forms a peninsula, surrounded on the north-west by the Cromarty—and on the south and south-east by the Beauly Firths. It is about twenty miles in its greatest length, and about eight miles in its greatest breadth. Parts of Cromarty and Nairn are included in this area.

There are two ridges of high land that run almost the whole length of the Isle, one near the centre that rises in Millbuie to a height of a little over 800 feet, and the other, that runs along the east coast commencing at Craigton opposite the town of Inverness, close to which is the Ord hill, 633 feet, and ends at the West Sutor of Cromarty.

This latter range is broken in one or two places by inlets, the principal of which is Munlochy Bay, a long shallow fiord, where the sea runs right up to the cultivated area.

Although the Black Isle possesses no high hills—the Millbuie ridge before mentioned being the highest—nor, indeed, any hill of any great prominence, the country is by no means flat. On the contrary it is very undulating, some of the slopes being very steep, though this does not much interfere with their cultivation, except in one or two places. There are many pretty valleys, which, though possessing few of the features of a Highland burn, still have a quiet beauty of their own.

At Fortrose and Rosemarkie there is a kind of plateau of no great extent, and this runs along the base of the hills and between the two places. South of Fortrose the hill rises almost directly from the sea, forming a very steep incline, and out of this the railway had to be cut for some considerable distance. On these cliffs hardwood grows well and freely, and the birch and oaks are of a fair size; there are plenty of other kinds, but greenwood, such as Scots firs, etc., is very scarce. At Fortrose the promontory of Chanonry Point almost closes the Moray Firth, in conjunction with the point on which stands Fort-George.

We may remark that the trees just mentioned, although growing just above and close to the sea, exhibit much less of that stunted, bushy, lopsided growth that is found in all, or nearly all, the plantations on the west coast. Possibly this is because the east winds are not so prevalent as the westerly ones, and not so salt-laden, nor are they, except on rare occasions, so violent, and these remarks extend to other plantations on the east coast where they are not exposed to the westerly gales.

At Rosemarkie, a most remarkable gorge runs inland for some three miles, or perhaps rather less. Never having suspected the Black Isle of containing any natural beauty of scenery, this came as a revelation to us. On a very minute scale, but none the less pretty for that, it reminded us of a miniature Rocky Mountain gorge. The valley must be some 200 or 300 feet deep, clothed from top to bottom with trees and vegetation of all kinds, except where the broken scaurs, probably caused by landslips, are too steep for any tree to have gained a foothold. In a steep corrie about half-way up the glen, on the south side, an isolated peak stands out almost entirely bare of vegetation, with one or two sharp-peaked ridges in the vicinity, all of which, when seen on a misty or dark day, have an appearance of greater height than they really possess. The trees, many of them well grown, form a tangled mass on the sides, the bottom, however, being fairly open and covered with short grass, through which runs a clear little burn. A road, overhung on each side by trees, runs along the edge of the ravine, but it is only in one or two places that the full beauty of the glen can be seen, and at one of these we noticed that the trees had been cut down apparently with the object of opening up the view.

For such a large self-contained area there is probably no larger district in the north of Scotland that has been so utterly changed by man. Probably, like the rest of the north, it was at one time thickly wooded by naturally grown trees, to which succeeded the heather, and consequently the Grouse. Now this has gone, not altogether, as heather may be seen in patches here and there, but in too small quantities to be of any avail for the muir-fowl.

Cultivation and plantations now occupy almost the whole area of the Black Isle, and although the land, especially in parts of the south and west, is very light, still in others it is very good, and yields large returns. On some of the larger estates the fields are very extensive, and do away with any idea of the wildness of the Highlands: turnips are not conducive to romantic scenery.

Although the present woods of Scots firs are all planted by man, and most of these are of recent date, ugly and rectilinear in their outline, still many of the older ones are beginning to lose their stiff rigidity of outline. Various causes—such as the partial cutting down of the best trees and leaving the others still growing, replanting an old area and leaving the older trees still standing, seedlings springing up on these old plantations, when the space is again fenced in from sheep and cattle—conduce to this. Along the road to Cromarty we noticed in several places the seedlings springing up in quantities along the open spaces by the unprotected roadside, where evidently plantations had existed before, or at least in close proximity to those now standing, the fresh grass showing well amidst the bright heather bloom. Here and there too were isolated trees, which having had space to breathe and grow as they listed, although not large, had assumed picturesque shapes which are foreign to those that are carefully planted and protected by the others around them.

We may here mention that we have been assured by eye-witnesses that Rooks, at a certain time of year, are often seen flying about with fir-cones (*derkins* one man called them) in their mouths, and dropping or burying them in the heather; this may account at times for firs springing up in unprotected and unplanted places.

A wide valley runs from where the road between Fortrose and Cromarty leaves the Rosemarkie glen, almost to Cromarty. The ground rises high to the east side, and the plantations, moorland, and arable ground, are strangely intermixed. Innumerable Rabbits appeared in one or two places, but elsewhere they were conspicuous by their absence. New wire-fences were being put up here and there, though the old and picturesque fail-dykes[1] were still standing in places, pointing out the old landmarks. Such a thing as a hedge, as one knows it in England, exists in very few places in the north, and these are often ragged and unkempt, and mended with all sorts of queer things,—bits of wire, palings, old wheelbarrows, or even an old cart-wheel.

Whins and broom grow freely in the uncultivated or unplanted patches, more especially in the south-west or south, where the soil is very light and much mixed with gravel, a great protection and shelter for game; such patches are frequently met with among the smaller farms and lots.

Just a little to the east of the old-world—though once important—town of Cromarty, are the well-known Sutors, which, separated from each other by less than a mile of water, guard the entrance to the Cromarty Firth. Many a wind-bound or storm-driven vessel has ridden quietly and safely in the roads inside the entrance, and the deep water extends right up to, and a little beyond, Invergordon, where the Channel Fleet has anchored on its visits to the northern ports. Immediately inside the Sutors, and opposite the town of Cromarty, the water opens out into the

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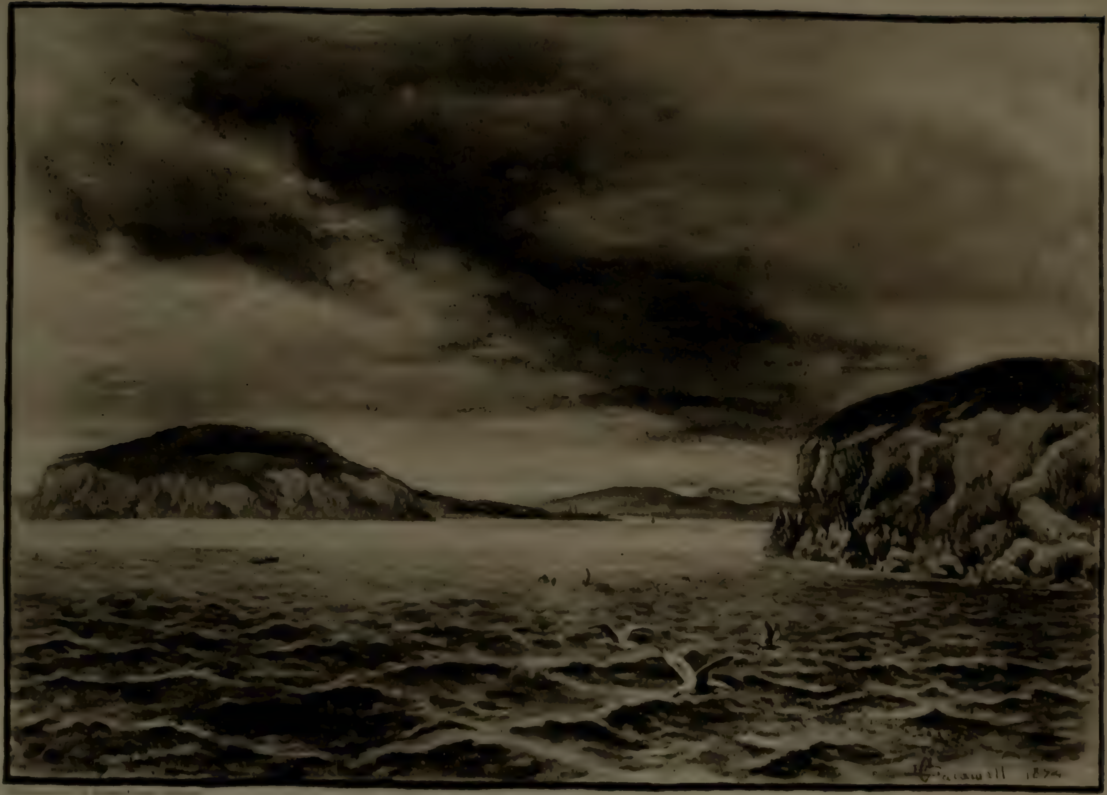
[1] 'A wall built of sods or turfs.'—Jamieson's *Scot. Dict.*



THE SUTORS OF CROMARTY

bay of Nigg, a long and wide, sandy and shallow bay, in the winter the abode of many wild-fowl.

The rocks on the West Sutor, and along the south coast of the Black Isle, are, in point of height and grandeur, nothing in comparison with those of the East Sutor. Bird-life is represented only by a few Rock Pigeons.

The west side of the Black Isle is uninteresting in the extreme. The cliffs facing the Firth are low and composed of boulder clay (?), while, sloping upwards, the ground rises in cultivated fields until it meets the straight line of plantation at the top. A most prominent feature of the shores of the Firth is the white house of Findon shining out from the dark fir plantation, certainly not a thing of beauty in the landscape; and indeed all the fine scenery of the Black Isle, as far as our experience goes, lies on the east side. Still, those who live in the west have one redeeming feature, and that no small one, for the view of the mainland, looking across the Firth, is very beautiful.

There are many handsome residences in this area, and some of these have fine gardens attached to them, and well-timbered grounds, such as Rosehaugh, Braelangwell, etc. etc. The timber in most of the valleys is principally hardwood, and from the scattered and irregular way in which it grows gives an added beauty to the scene.

There are no lochs or sheets of water of any size in the Black Isle, and, as might be expected from its restricted area, there are no rivers, the burn that runs out at Avoch (pronounced *Auch*) being the largest stream.

IV. THE CONON.

The Conon is the principal river in Ross-shire, and, with its affluents, drains all the southern part of the county. Among these affluents are the Blackwater, Orrin, and Meig, the first named being the largest and most important.

The upper part of the Conon river is called the Bran. Coming abruptly to the top of the watershed, from the Loch Maree side, one is struck with the tame character of the upper part of Strath Bran. The hills are low—only one apparently being a little over 2000 feet—and their rounded, green appearance makes them look even less. There is no sharp outline to relieve the eye, until one looks beyond to the hills forming the watershed of the Conon; in the Achnashellach and Applecross forests all the outlines viewed from here are smooth, and hill and valley a monotonous green. Near the head of the strath are one or two small lochs, the most important of which is Loch an Sùr Leathaid, and these send their waters into Loch a' Chroisg (Rosque). This loch is long and narrow, some three miles long and about half a mile broad; a good deal of the hill on the north side of the lower end has lately been planted by the present proprietor, Mr. Bignold, whose magnificent shooting-lodge is a prominent feature in this dreary country. Bird-life was conspicuous by its absence, a 'covey' of Hooded Crows and a few Titlarks being all we saw in a journey of some seven miles.

At Achnasheen the Bran receives the water of Loch Gown, where a good number of ducks are generally to be seen. On the watershed along the roadside, when the coach used to run from Dingwall to Strome, the driver pointed out to us a spring whose waters ran either way, partly to the North Sea and partly to the Atlantic. From Achnasheen to Achanalt there is a gentle slope down along the river Bran, and the scenery between these two places is, if possible, more uninteresting than the upper parts, the only redeeming feature being the twin peaks of Scuir Vuillin and Scuir a Ghlas Leathaid, the latter being some 2800 feet high. The grouse-shooting here, too, is fairly good for the district, and there are the two shootings of Camashie and Casachans at either end of the strath. The bottom of this strath is all good green ground.

Close to Achanalt Station the river enters Loch Achanalt. The trout here are fine and large, but very scarce, owing to the numerous pike it contains, and early in April is the best time to fish it. From here the country becomes more interesting and the river of quite a different character, being wild and rocky, and with a rapid fall until near its entrance into Loch Luichart. Close by here it receives the waters of Loch Fannich, which lies in the Fannich forest, the property of the Mackenzies of Dundonnell, and which lies between the forests of Loch Rosque and Loch Luichart. Trees begin to appear again, principally birch-woods, and bird-life shows itself in consequence.

The upper end of Loch Luichart is very shallow, and contains plenty of pike; the largest on record was shot by one of the keepers, and weighed about twenty-eight pounds. Curlews and Redshanks frequent a marsh near the head of the loch, and Woodcocks breed abundantly in the birch woods. Ducks are not particularly abundant here, and the pike may have something to do with this, as the same keeper who shot the large one just mentioned, told us that he was watching a brood of small Goosanders one day from the hill above the loch, and noticed one or two disappear, and never come up again. Lady Ashburton's shooting-lodge overlooks the loch, and in the woods there are a good number of Fallow Deer, which are often to be seen from the train, principally in the winter. The loch takes a turn southwards, and on this side of it the ground is occupied by sheep-farms and grouse-shootings, the forests lying on the north side of the loch and river Bran.

The loch is much deeper towards its southern end, and on the south side the slopes of the hill are very rough, with long heather and boulders, in some places the precipices overhang the water, and here the Peregrine finds a fairly secure place for her nest. Towards the lower end of the loch both sides are well wooded mostly with birches and a few natural firs. The Conon falls prevent Salmon from entering the loch.

The Blackwater has its sources in some of the highest hills in the district, which are situated partly in the Fannich forest and partly in the forest of Braemore. The Braemore hills are magnificently wild, rocky and stony to a degree, and one wonders where the deer find any grazing, at least on the higher ground. Ben Dearg, 3547 feet, is a grand hill, finely shaped, and stands out well when viewed from the road that passes along the level valley of Glascarnoch, and runs from Garve to Ullapool, there being no intervening hills to obstruct the view. Sgùrr Mor (3637 feet), on the opposite side of the valley, and one of the highest of the Fannich hills, is not quite so striking, at least when viewed from the same place, as it does not stand so much alone, and the main hills detract somewhat from its grandeur. All down the Glascarnoch valley is a scene of desolation and dreariness; the green hills slope down to the flats at the foot on either side, high enough to obstruct any view that may be beyond, and adding nothing themselves to the beauty of the place. This valley was, at one time, well wooded, judging from the number of fir roots everywhere visible, and perhaps these firs gave the name to Alguish, where there is now a small inn, though what the use of it is there one can hardly imagine: there seem to be no houses near. We were surprised to find here a large and apparently old-established colony of House Martins, judging from the number of nests, old and new, from which latter the young birds were taking their first look-out upon the world. Below Alguish, first Strath Vaich and then Strath Rannoch discharge their waters into the river, and a fine view is obtained up the first-named strath, where the hills of the Freewater forest close up the background; there is no view from the road up Strath Rannoch.

From here, looking north and south, the country is open, and there are no hills of any elevation, but due east the view is entirely shut in by the back of Ben Wyvis. The river now begins to assume a look of greater consequence, as it meanders through the green Strath Garve, clothed with birch on the west side, while north and east, as we near Loch Garve, the familiar fir plantations begin to assert themselves.

Under Ben Wyvis, and stretching along and up Little Wyvis, the heather is better-looking and more suitable to grouse; indeed, upon Little Wyvis is some of the best grouse-shooting ground in the district, and this is attached to Castle Leod.

Except for its size, Ben Wyvis is not a fine-looking hill from the east, and it is almost still more uninteresting from the west. A great wall of green, with no corries visible, it rises almost at once with a steep slope up to the summit; where, separated from Little Wyvis, rocks appear on either side of the divide. Otherwise, nowhere along its length are even stones visible, except on a lower shoulder towards the north-western end, where, either by rain or wind, or possibly by both, the soil has been eliminated, leaving a bare piece of stony and rocky hill. Looking at it from Strathpeffer, the upper parts appear one vast peat-bog, the commencement of the water-courses marking out the peat-hags, the lower parts immediately above the Strath being covered, for some considerable distance, with the inevitable fir plantations.

The Blackwater runs under the shoulder of Little Wyvis into Loch Garve, which contains pike of large size, and in the winter is much frequented by ducks. A little distance below where it leaves the loch are the well-known falls of Rogie, thence it runs through the well-wooded estate of Coul, and a little below Contin it falls into the Conon.

In the districts of Craigdarroch, Scatwell, and Fodderty there is a very large amount of wooded area, interspersed with some excellent arable ground, affording a mixture of every sort of game, with the exception, perhaps, of the Ptarmigan.

A very good view is obtained of the valley of the Conon from the railway just opposite Conon House. The rugged outlines of the far-out hills, covered with snow until quite late in the season, form a framework to the lower heights clothed with wood, glimmering on a fine warm day with the blue haze of distance, and below, the well-cultivated fields of Fairburn, Highfield, and Conon, with the river running at the bottom of the strath. The woods through which that part of the line runs are well kept, and in the proper season are bright with rhododendrons.

V. THE BEAULY BASIN.

The Beauly is formed by the junction of its two principal affluents, the Farrar and the Glass, which unite at Struy, close to Erchless Castle, the seat of the Chisholms: the Glass receives the waters of Glen Cannich and Glen Affric.

Like most of the large eastern rivers, the watershed of the Beauly is of great extent, and its outlying feeders rise close up to the western sea.

Loch Monar forms the collecting-ground for the head-waters of the Farrar. The principal of these are the Strath Monar burn and the waters that come from Loch Calavie and the Gead Loch.

Strath Monar is a wonderfully wild spot. The strath itself is very narrow, with grassy slopes below, from which the hills rise almost perpendicularly to a height of over 3000 feet; they are higher on the north side than on the south, and more broken up into peaks, the hill on the south consisting of one long ridge, the Gaelic name of which, sounding something like 'Luri-ki-vore,' really is Lurg Mhor (3234 feet), was translated to us as meaning the 'Long Leg.' Like so many of these fine upper glens, there is little heather, and continued reckless burning in the sheep-farming interests of a former day has almost entirely done away with what there was, and now it is mostly green ground. Tumbled masses of rock occupy most of the upper parts of the corries, the haunt (at least a few years ago) of many foxes, and a favourite resort for deer; not a tree is to be seen,—a grandly desolate place. The south side of the 'Long Leg' (3234 feet) is more gently sloping and of a smoother character. Loose flat stones compose its upper part, and it is a favourite haunt of Ptarmigan,—indeed, the whole range contains these birds. In its whole length there are only two corries of any size, wild in character, like those on the other side of the hill, which gradually slope down to the foot of Strath Monar.

From Loch Calavie the water runs between Ben Dronnaig and the Long Leg, into the Gead Lochs, and from thence into Loch Monar. Ben Dronnaig itself is a massive-looking hill, more rounded than rugged, dark and dreary-looking on the north side, where it overhangs the loch, a contrast to the bright sunny slopes of its opposite neighbour. Between these two the valley opens out on to the valley of the Gead Lochs and Loch Monar, the watershed here being low and flat. In these flats and the lower slopes of the hills the heather is better, and consequently the grouse are more abundant. Round the Gead Lochs (so called from the pike they contain, as well as some excellent trout) and the burn that runs into Loch Monar from them, there is a good deal of grass and marshy ground, generally frequented by ducks. A pair of Black-throated Divers were often seen on the lochs themselves, and on one occasion in the winter we saw two wild geese, which we took to be Bean Geese, and a lot of Wigeon, but bird-life, on the whole, was poorly represented. Roe, however, were occasionally seen here, a curious locality, especially in the winter, as there are no woods very near.

A fine view of the whole of the upper strath over the Gead Lochs and down to Loch Monar is obtained from the shoulder of Ben Dronnaig. Towards Monar the green sides of the 'Long Leg' slope down to the heather-covered hillocks of the middle valley, which, being mostly composed of gravel, are always dry, and the heather grows freely. In the distance to the east lies Loch Monar, the ground on the north rising sharply to a height of 1500 or 1600 feet, while in the south, beyond Patt Lodge, the ground is flat, and more like a grouse moor than a forest. To the west, the river Ling, rising in Loch Cruoshie at our feet, pursues its course towards the sea at Loch Long, where it is overhung by the steep rocky slopes of Ben Killilan.

Right opposite, in the forest of Patt, is the ridge of Riabhachan, below which runs the burn of Coire nan Each (generally called Coréach), said to be some of the finest grazing for deer in the district. On the east side of the burn is Cruachan, which is never without deer, more especially during the rutting season, and far beyond, Sgùrr na Làpaich (3773 feet) rises over the main hills, the highest mountain in the dividing range between Glen Strath Farrar and Glen Cannich.

The two principal affluents of the Glass river are the Cannich and the Affric, which join the main stream respectively at Invercannich and Fasnakyle. Passing them on the main road there is nothing in the appearance of these almost burns and the narrow glens down which each flows, to denote the great extent of country that opens out on ascending their course.

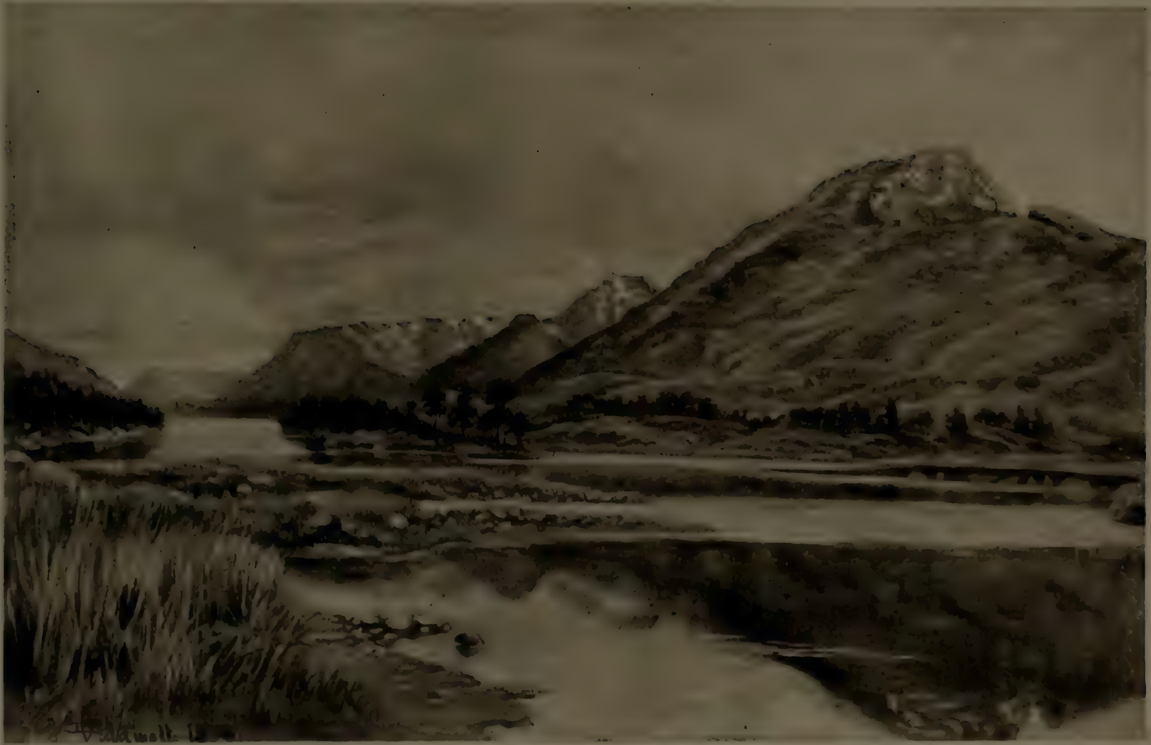
Leaving the main road which goes south-west towards Guisachan, the road that leads to Strath Affric Lodge turns off almost due west, through what is called 'The Chisholm's Pass.' Rugged and rocky indeed is the burn that runs through this wild glen, the sides of which are clothed with magnificent large birches, mixed, as one reaches the higher level, with much natural fir. On the level the river assumes a quieter aspect, a broad smooth stream, opening out here and there into still reaches, more resembling lochs, near where it issues out of Loch Beneveian. Though not particularly high or bold in outline, the hills thus far are steep, and covered for a considerable distance along their sides and slopes with trees. Once Loch Beneveian is reached the trees are less numerous on the north side of the strath, but firs now predominate, and are thickly spread along the north side for some way along Loch Affric, the southern side of Loch Beneveian being wooded to the very sky-line.

Between Loch Beneveian and Loch Affric the river joining the two widens out into several small lochs, and it is on the south side of this part of Strath Affric that the greatest number of the natural firs exist, the country being just there more undulating almost than hilly, and containing a good deal of very long rough heather. The north side is almost entirely devoid of trees, and at a single spot where a little burn comes in, is a small extent of green ground, where we saw a solitary Lapwing and one or two ducks.

Jutting out into Loch Affric at the east end is a peninsula clothed with trees and rhododendrons, and on it is situated the pretty well built shooting-lodge of Glen Affric.

The scenery here is about as wild as anything we know of in our present area. Looking up the loch, a sprinkling of old natural firs lines the edge for a short distance, these spreading much farther up the hills on the south side, and giving a more clothed look to the place. On the north side tower the heights of Mam Soul (Mam Sodhail), 3862 feet and Sgùrr na Làpaich, 3401 feet, this latter not to be confounded with the hill of the same name between the head-waters of Strath Farrar and Glen Cannich. Far away in the western distance are the hills forming the watershed between Glen Affric and the Croe and Shiel rivers, large white patches showing where the snow was yet—the beginning of July—lying thickly on the eastern sides.

Sgùrr na Làpaich rises very steeply above Loch Affric, clothed with grass and heather almost to its summit. Mam Soul lies farther up the northern side, and stands farther back, a much rougher, stonier hill on this side than its neighbour.



LOCH AFFRIC, STRATH GLASS, INVERNESS-SHIRE

The hills immediately on the south side are of less elevation, and those on the watershed between Strath Affric and Glen Clunie, though many of them are over 3000 feet, lying, as they do, at some distance from Loch Affric, are not seen from the lodge, being shut out by the nearer and lower ones.

To our mind, really the best view of Loch Affric and the great hills round its northern side is obtained from one of the hills at the head of Allt Riabhach on the Guisachan estate, as from there one sees the great extent of the old fir-woods, the loch itself, and the shooting-lodge nestling amongst the trees; whilst the views of Carn Eige (3877 feet), with Mam Soul and Sgùrr na Làpaich, are much more extended, and their form and general appearance more easily made out; their size, too, is much more apparent when seen some little distance away.

Going up the Chisholm's Pass we were struck with the great numbers of Jackdaws, which no doubt find excellent nesting-ground in the rough sides of the Affric river; we saw none of these after we had left the pass towards the loch. The day we visited the district was an unfortunate one both for our artist and for ourselves: dark and gloomy, few birds showed themselves, but even at the Affric Lodge we saw the following:—Yellowhammer, Fly-catcher, Pied Wagtail, Black-headed Bunting, Thrush, Swift, Sand Martin, Starling, Redstart, Blackbird, etc. One or two of these one would hardly have expected in à district so far removed from habitations with the exception of the little colony round the shooting-lodge.

The half-burn, half-river, that runs past Guisachan, and joins the Affric river at Fasnakyle, has a watershed of its own, which lies between the Affric and Moriston rivers. At its head-waters the Riabhach is an uninteresting burn, heading as it does up to the dreary, wet, flat moorland that lies between it and Glen Doe. Lower down, as we near Cougie, the scene changes, and birch woods, mixed with alder, line the banks of the stream; patches of juniper appear here and there from which a number of old Black-cock fly up at our approach; a herd of stags, their horns already (the middle of May) showing well, moves quietly off into a higher patch of wood. Below Cougie the river runs through a green haugh, the wooded hills rising on either side, those on the south side being clad mostly with firs, while on the north, birch and hardwood predominate; from the haugh a Greenshank rises, and a little lower down we see a pair of Goosanders. As the strath opens out, the scenery still improves; the firs, both on the sides of the hill and low down in the course of the burn, have a more gnarled appearance and are greater in size, while on the other side the birches rise higher and more stately and beautiful. About Guisachan House the land assumes the richness and the scenery of an English park, so much has it been improved and so carefully kept. Deer wander all about, close up to the mansion-house or the head forester's cottage on the hill, and on one occasion we came on nearly a score of the beautiful males of Reeves' Pheasants sunning themselves on a hillock, a pretty sight.

Though much of the wood is natural, still a good deal has been planted, and Lord Tweedmouth has a nursery for the constant supply of young plants, not merely Scots firs, but other ornamental trees and shrubs. Rhododendrons seem to do well here, and much of the wood and borders of the burn near the house, have been planted with it.

Referring to the trees of Strath Glass, the late Lord Tweedmouth sent us the following notes:—

'The natural firs and birch extend for miles, say from immediately west of Guisachan to Ardnamulloch, *i.e.* fourteen miles. The firs are much more numerous on the south side, and the birch on the north side of the strath, the former preferring shade and the latter sun, I suppose. Cougie Wood is at the head of that glen, with steep hills on either side, and there—Cougie Wood—the firs are as numerous on the south as on the north.

'Lord Lovat, born 1802—grandfather of the present Lord—told me that there was not a birch in Strath Glass (the one I am speaking of) until sheep took the place of black cattle that used to be sent to this and similar districts for grazing during the summer months, and from my own observations since, I am in little doubt that such was the case—*i.e.* cattle browsed on the rising birch.

'Sir Roderick Murchison's theory was that the fir had succeeded the oak-tree here (and my objection that the oak-tree now bears no acorns, or when they do in an exceptional season, an acorn is not bigger than a pea, was held to be frivolous), that the birch would supplant the fir, and oak would follow the birch—not in our time but in the far future. [The barrenness of the oak resulting from continuous emasculating by the cattle cropping the twigs and coppice.—J. A. H.-B.] 'The natural firs are, of course, self-sown, and are of all ages and sizes. We take seedlings two or three years old for either putting in our own nursery, or for transplanting elsewhere, and I am frequently asked for some of these self-sown firs. I sent some to Lord Aberdeen the other day for a property in Vancouver,[1] which he has purchased and called Guisachan, *i.e.* The Firs.'

We think the foregoing is most interesting and important. The birches now are a feature in the strath, fine and large trees they are, nearly all of that 'weeping' character that seems to come on only with age and size.

Between Inver Cannich and Struy the strath is much less wooded, and the trees lie mostly on the south side, the little wood there is on the north side consisting principally of alder. Dog-roses grow to a very great height here, climbing up through the other trees, which give them support. Strath Glass, from Fasnakyle to Eskadale, is a wide open valley, level and green in the bottom, the river flowing sluggishly through it. The hills which form the sides are of no great height, nor are there any high hills visible, except where the Farrar joins the Glass, from whence a view is obtained of the lower end of Strath Farrar.

Erchless Castle, the seat of the Chisholms, is not far from Struy, the high road passing through the well-timbered and well-kept grounds, though the house itself is not visible from it. On the opposite side of the river, and a little lower down, is Eskadale House, and here, and as far down as Eilean Aigas, the river still keeps up its open, broad, and sluggish character. At Eilean Aigas, as may be inferred from the name, the river divides, forming the island, and thereafter, when the two streams again unite, the river runs more rapidly, the valley contracting into a narrow space called the Druim, the sides in places rising straight up from the water, and forming precipices, while the river rushes below in a foaming torrent, or forms dark, still, and oily-looking pools.

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[1] (?) British Columbia.

These high banks are of a 'pudding-stone' nature, and in places have been worn into holes, in which gnarled trees, covered with ivy, find a precarious foothold; these are the resort of numerous Jackdaws and a few Stock-doves, which seem to find excellent breeding-ground here. Immediately after leaving the Druim the river opens out from some fifteen or twenty yards in breadth to over one hundred, and then passes the well-known falls of Kilmorack. Below the falls the river runs swiftly for some considerable distance, and here the best angling is to be had, mostly from a boat; below the Black Bridge it ends in a deep, sullen, dark pool, with little life in it, unless during a very heavy spate. Near here, on the right bank, is Beaufort Castle, the seat of the Lovat family. A little below this are the cruives, the most extensive we have ever seen, and, between these and the nets, the wonder is that so many fish ascend the river as is the case. From here to the ferry below Clunes the river runs through a gravelly bed, forming pools of more or less excellence, from an angling point of view. Below the ferry the land is heavier, and the river is kept from continually flooding it by embankments.

From the neighbourhood of Eskadale downwards there is no land of any height, it is mostly grouse moor. Besides the large area under wood there is a great amount of cultivation interspersed, both crofts and large farms; much of the low-lying land below Beaufort suffered from the heavy floods of January 1892, large quantities of good land being washed away or covered with stones and sand. But the wooded area, all or nearly all, with the exception of the patches of birch and alder, planted by man, is the most striking sight, stretching as it does from Farley in the north, past Belladrum to Glen Convinth in the south, and from Eskadale eastward to the Beauly Firth. Such an extent of wood must materially affect the climate and bird-life. A very large amount of this planting was done between the years 1830-50.

To our minds the most beautiful part of the whole strath is that part from Aigas, where the valley narrows, to the old Beauly bridge, where the main north road crosses the river. Beautiful by nature

THE DRUIM, BEAULY RIVER.

and improved by man, almost every sort of tree that will grow in the north is to be found here, mixed with bushes, long heather, and other herbage. Bird-life is abundant here, and we have no doubt that some discoveries may yet be made amongst the smaller species. The whole district has a well-kept look about it, and the cottages have nearly all a well-stocked flower-garden, bright with colour.

Before leaving the Beauly we may refer our readers to an excellent paper by Mr. Wallace on 'The Basin of the Beauly,' which he read before the British Association at Aberdeen in September 1885. From this paper it would appear that, before the river cut its present course through the Druim, in geological ages past, it must have formed an expansive lake above the narrow gorge, discharging its surplus waters through the hollow known by the name of Fanellan, finally emerging at Groam of Annat, near Beauly Bridge. Moniack Moss was at one time a lake and the old bed of the Beauly; subsequently it became a marsh, which was drained at great expense by the late Lord Lovat, and is now well-cultivated land. That this was a loch is easily realised by any one who looks at the lie of the land.

VI. NESS VALLEY, NORTH SIDE—LOCHS GARRY, OICH, AND NESS; GARRY, OICH, MORISTON, COILTIE AND ENRICK, AND NESS RIVERS.

The valley of the Ness forms the north-western end of the great glen which, reaching south-westerly across Scotland to Banavie and Loch Eil, almost divides that country into two. The watershed of the great glen divides at Loch Oich. This loch receives the waters of the Garry and its tributaries, which rise in Glen Quoich, and, flowing through Lochs Garry, Oich, and Ness, enter the sea at Inverness. A reference to the map will show the great extent of country thus drained, the head of Loch Quoich being within a very few miles of Loch Hourn, on the west coast. No wilder spot could be found, we fancy, than Glen

Quoich, nor any place possessing quieter beauty of scenery than the valley of the Ness.

Besides the Garry, which is, at the same time, both the head and principal tributary of the river Ness, two other rivers contribute their drainage-waters thereto. The first of these is the Moriston, at the head of which is Glen Clunie, and which drains the forests of Clunie, Ceanacroc, and Glen Moriston, entering Loch Ness at Invermoriston. The second and smaller runs through Glen Urquhart, and is formed by the two streams, the Coiltie and the Enrick. The former of these rises in the Balmacaan forest; the latter runs through the properties of Corriemony and Lakefield. Both these join at a point below Drumnadrochit, forming a marsh between their junction and the loch. After Glen Urquhart is passed, only a few insignificant burns enter the loch between there and the sea, the watershed between it and the Beauly in the north being very narrow, and the burns flowing either directly into the Beauly or into the firth between Beauly and Inverness.

Having thus given a rough outline of the principal tributaries of the Ness, we will now proceed to examine these more in detail.

The upper part of Glen Quoich is wild in the extreme, many of the hills rising to over 3000 feet, and these are ramified by numerous corries, the lower parts of which are in many places clothed with birch. Amongst these giants may be mentioned—Creag nan Damh (3012 feet), Sgùrr an Lochain (3282 feet), Aonàch air Chrith (3342 feet), on the north side of the glen, and Sgùrr à Mhoraire (3365 feet) on the south, besides others. Loch Quoich, eight miles long, lies in this grand amphitheatre of hills, and on its shores is Lord Burton's shooting-lodge on the Invergarry estate. All this fine wild country is under deer, and some of the finest heads in Scotland came from this and other forests in the immediate neighbourhood. It was from this forest, though on that part of it belonging to Lochiel, that Lord Burton's twenty-pointer was shot in 1893. Between Loch Quoich and Loch Garry the river Kingie joins the Garry from Glen Kingie, also on Lochiel's property. This is the largest affluent during the whole course of the Garry, though a number of burns, some of them of a goodly size, run into Loch Garry principally from the south side.

Between Loch Quoich and Loch Garry the river Garry is somewhat canal-like, and runs sluggishly through meadows, which are often inundated after heavy rains. About two miles above Loch Garry the road which runs along the lochside and passes Tomdown Inn, crosses the watershed between the Garry and Moriston rivers on the north into Glen Clunie. The watershed here is very low, almost a level, nor have the dividing hills on the watershed, though some of them are of considerable height, over 2000 feet, such a grand appearance on the east side as those to the west of Tomdown Inn, being rounder and less rugged. A very fine view of the greater part of Glen Quoich may be obtained from the hills above Ardochy House on Loch Garry. The range of hills right away up to the head of Loch Hourn and Loch Nevis are visible: in the near distance can be seen shining the waters of Loch Quoich, and to the south and south-west the fine range of hills which bound the forest of Glen Quoich in that direction. A glimpse may be obtained, too, of the head of Glen Clunie. At one's foot lies the beautiful Loch Garry, clothed all round its shores and the upper slopes with birch-trees, and on the south side the still considerable remains of the old forests of natural fir, beyond which rises the higher mountain range which separates the properties of Invergarry and Lochiel. At the upper end of the loch a pair or two of Oyster-catchers breed, and it is also frequented by Goosanders and Black-throated Divers. At one time the Osprey was not an uncommon visitor, but now it seems to be disappearing from this its last stronghold in the north-west. At its east end the loch appears to be shut in by rocks, but a rent allows the river to escape over a very considerable fall, and to form the well-known and celebrated angling river Garry: although quantities of salmon ascend into Loch Garry, they have never been known to rise to a fly there, and the upper river is only used as a spawning-ground. The Garry is a rapid river, and during the whole of its course flows through rocky and very stony ground until it enters Loch Oich. From Loch Garry to Loch Oich the scenery on both sides of the river is entirely woodland, beautiful by nature and beautified by art. All kinds of hardwood and coniferæ flourish, and, for cover for game, rhododendrons abound. It was on the rocks above, where the river issues from the loch, that the fir-trees stood in which, years ago, a pair or two of Kites used to build; it is almost needless to add that they exist there no longer. Beyond the pretty and most comfortable inn at Invergarry, the oak is the most common of the hardwood, and these trees extend along the banks of the river Oich almost to Fort Augustus, and nowhere have we such a display of primroses as when driving from the inn to meet the steamer at Cullochy locks. On the right hand of the mouth of the river are the spacious grounds and large modern mansion of Invergarry, and a little to the south stands the keep of Glengarry Castle, the old residence of the Macdonells, the former owners of the Glengarry property; this old ruin even yet belongs to them, all that still remains of their vast territory. Loch Oich is a shallow loch, some three miles in length, and barely half a mile broad in its widest part, and yields good salmon-fishing in the early months.

The only other loch of any importance in this district is Loch Lundie, whose waters join the river just above the inn. This loch has a good many pairs of Common Gulls breeding along its edges, and at one end, which is marshy, a small colony of Black-headed Gulls has lately established itself; a pair of Black-throated Divers also had a nest on one of the points. Greenshanks, too, were seen in the vicinity; and in a small wood the Tree Pipit was observed.

The principal newly made plantations in this district are situated mostly at the west end of Loch Oich extending as far as the river Garry, the rest of the property being abundantly supplied with natural woods; the old pine forests have mostly disappeared, except a little at the south-west end of Loch Garry.

Loch Oich, into which the Garry flows from the west side, and about half-way down its length, is nearly four miles long, and for the most part very shallow. Its shores on the west side are clothed with wood, the larger plantations of fir lying on the south-west side of the Garry. Close to the river, and on the same side, is the house of Invergarry, a fine view of which, and of the keep of the old castle of Glengarry, is had from the steamer on her way up or down the Caledonian Canal. On the north and west side of the river the woods are mostly composed of hardwood. The hills on the east side of Loch Oich are almost entirely covered with grass—very little heather is to be seen here—and they rise almost straight from the loch side. Scarcely a tree is to be seen, except some small patches of scrubby birch, and a few firs planted round the shooting-lodge of Aberhalder. Except for its salmon-fishing, which in early spring is excellent, there is nothing striking about the loch.

The river Oich issues out of the north end of Loch Oich. At its head a kind of weir keeps up the level of the loch in the interests of the canal, the main stream running under a rock on the west side. As an angling stream the Oich is not of much account, except in heavy water in the early spring, the salmon going through into the river Garry and Loch Oich; and through a great part of its course, more especially in the upper reaches, it is a sluggish stream. It enters Loch Ness close to Fort Augustus.

The greater part of the valley through which the Oich flows is composed of gravel, evidently moraines, and much of this has been planted quite of late years; whins and broom also grow well. Some small lochs and back-waters of the canal generally hold a few ducks (especially Goldeneyes in the winter), also Goosanders. From the nature of the ground there is little cultivation all through the strath, what there is being mostly situated at the southern end.

The next strath in importance is Glen Moriston, which lies to the north-east of Glen Garry, and drains the watershed between Glen Garry, Strath Affric, and Glen Urquhart. This basin includes the forests of Clunie, Ceanacroc, Dundreggan and Glen- and Invermoriston. The Moriston river is composed of three principal affluents, which unite not far from each other near Ceanacroc Lodge: the southernmost of these is the Loyne, the middle the Clunie, and the northern one the Doe: the two former have lochs of the same name as themselves as reservoirs; the Doe is merely a mountain torrent.

Loch Loyne, into and out of which the river Loyne flows, is of very irregular shape, more like a series of small lochs. It has several islands, on one of which the Osprey used to build, but latterly this has been occupied by Herons. It abounds with pike; and trout, consequently, are scarce. The scenery is wild and gloomy in the extreme; the heather, where it exists, is poor and stunted, and Grouse are in a decided minority; the ground is wet and sour, and covered for the most part with deer-hair grass. A Greenshank was observed here, also Black-throated Divers and Goosanders; and while on the island frequented by the Herons a Merlin appeared chasing a Meadow Pipit, which latter, however, effected its escape. The surrounding hills, being round and covered with vegetation, do not look their height, and have little of the picturesque about them.

The day on which we visited this loch (Loyne) was wet and dreary, and this may have imparted a similar feeling to our ideas: sunlight makes all the difference to one's impressions of a place. Still, the view of the half loch, half river-like Loch Loyne and Tomdown Inn, with the extent of deer-grass-covered flow in front, is not in accordance with the wilder and grander Glen Garry, its near neighbour.

Glen Clunie, in its upper parts, is as wild a spot as one could well wish to see. The hills rise on each side to a height of over 3000 feet, more especially on the north side, where the Chaoruinn-mhoir burn comes in. One of these hills, Garbh Leac, indeed, is no less than 3673 feet. After passing Loch Clunie, which we were informed is an excellent fishing loch, the hills are of a less elevation, and the ground of a much less interesting character.

The Doe—which must not be confounded with the burn on the south side of Loch Ness, and which gives the name Glen Doe to Lord Lovat's forest in that direction—is the last and smallest of the Moriston tributaries, and is, for a mountain burn, of considerable volume. At its head is some excellent deer ground, especially when a little late in the season and the stags begin to run.

From the top of Carn a Choire-buidhe, on a fine day, a very good view of the whole course and surroundings of the Doe can be obtained, as well as of part of the lower Clunie. The hills at the head of the water are high, but not by any means rugged or grand; some are covered with coarse black heather, others, especially that on which we are standing, with coarse grass—at this time of year, the middle of May, only just beginning to show a little green at the roots. Below, at our feet, runs the Doe, its banks dotted with scattered birch and a rare Scots fir: beyond, the dark corries, in one of which, nearly opposite us, the Golden Eagle builds, and is, fortunately, preserved; above, to our right, is some good Ptarmigan ground: immediately below us are some rocks in which the Peregrine and Raven build—not very amicably, judging from the shrill noisy chatter of the former as they stoop down on one of the Ravens, who turns on his back and utters a hoarse croak each time the falcons near him. Below these rocks is an extensive cairn, which generally holds a fox, though none are apparent to-day. As we sit quietly waiting to see if the keeper can put a fox out of the cairn for us, a young stag suddenly appears, and after eyeing suspiciously the two *very* still figures for a minute or two, begins to feed not more than five or six yards away, every now and then quickly lifting his head, as suspicious deer will do, to see if the two objects are dangerous or not. Thanks to the invisibility of our clothes, and our quiet, he is convinced there is nothing to fear, and feeds quietly out of sight. A number of deer running along below the cairn warns us (Duncan Maclennan[1] the Guisachan stalker, and ourselves) that the other keeper is coming through the cairn, and shortly after he joins us, and we sit down to our lunch. From where we are resting, the country below us to the left appears to be one great flat, a dreary yellowish-brown expanse, dotted with here and there a small loch and innumerable bru-lochans. Lower down the burn the trees get more numerous, and among them, where the Clunie river joins the Doe, can be seen the lodge of Ceanacroc, to which a bridle-path has been made from Guisachan, and along which we came for most of the distance to our present position.

Just above Ceanacroc the waters of the Clunie and the Loyne unite, and at Ceanacroc the Doe adds its volume, thus making the Moriston river. Shortly after passing Ceanacroc the banks of the river are well wooded for some considerable distance on either side. As it nears Loch Ness, the river runs through a break in the steep hills that rise from the loch, the rocky gorge being clothed up to the summits with trees, mostly firs, but also with a great deal of natural hardwood. On a kind of plateau on the east side of the river stands Glenmoriston House, a castellated mansion belonging to the Grants of Glenmoriston.

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[1] Duncan Maclennan, for a long time head-stalker to the late Lord Tweedmouth, and still living at Guisachan.

At Glen Urquhart, two small rivers, the Coiltie and Enrick, unite in a marsh just before entering Loch Ness.

The Coiltie lies wholly in the forest of Balmacaan; it rises at the back of Meall Fuarvounie (2284 feet), being supplied with water from a multitude of lochs of varying sizes, but mostly small. It flows through the woods and down the glen in which stands Balmacaan House, the property of the Countess of Seafield, and has a steep and rapid course.

The Enrick is the larger stream of the two, though even when united they barely rise to the dignity of a river.

The Enrick rises out of the same district as the Coiltie, but takes a much longer round. Its sources are on the watershed almost immediately opposite Guisachan. At first it trends in a northerly direction, but sweeps round at Corrimony and bends eastward, passing through Loch Meiklie near Lakefield.

This little river, with the exception of the first few miles of its early course, when it is collecting its tributaries, is almost wholly wooded throughout its length. At Corrimony there are some natural firs, besides a considerable area of plantations. Less than half-way between Corrimony House and Loch Meiklie cultivation commences, at first a few half-formed fields either being, or only lately, reclaimed from the original heather, but as we come lower down the valley the land is older, and the crofts—for a great part of the arable land seems to belong to the crofter class—get more and more numerous. The best and largest farms are those about Balmacaan and Drumnadrochit, and the whole glen is pretty thickly inhabited.

The glen, narrower when it joins Loch Ness, opening out beyond gradually into a wider and shallow strath, is, through the whole of its course more or less wooded, the woods, especially on the south side, extending to the top of the boundary hills. A great deal of this is natural hardwood, principally birch, but mixed with a great deal of rowan, ash, gean, poplar, and, immediately along the river-sides and in the marsh at the mouth, a thick growth of alder. The greatest extent of planted fir is about Balmacaan House. One tree in the glen deserves especial mention here, the bird-cherry, as nowhere do we remember to have seen such a magnificent display of blossom as when driving along the road which runs through the glen on the way to Strath Glass.

At the junction of these two small rivers is a marsh, situated in a dense thicket of alders, mixed with blackthorn, and having a thick undergrowth of brambles, etc. This is a great resort of ducks, and Teal are very common here in the winter (Muirhead) Great numbers of Common Sandpipers haunt the banks of the rivers, more especially the Enrick, in the summer, while outside in the bay adjoining Coots are always to be seen.

On the south-west entrance to the bay is a promontory, on which are situated the fine ruins of Urquhart, or Strone Castle. On the north-east rises the rocky eminence of Craig Nay, composed of conglomerate, and, with the exception of the portion that faces southward, where it is too rocky and steep for any tree to get root-hold, is entirely covered with a dark mass of fir-trees.

Although this glen, from its warm, sheltered situation and its mixture of woodland, arable ground, and moorland, is admirably adapted for the greater variety of small birds, yet, like so many other parts of the kingdom, even here they were unable to stand the severity of the winters of 1878-79 and 1880-81. Mr. Craig remarks that, before the migrants came in the spring of 1881, scarcely a bird was to be seen in the glen, and this was scarcely to be wondered at, seeing that the thermometer registered for several mornings from six to twelve degrees below zero.

Loch Ness must be well known to almost all those who yearly visit the northern Highlands. Its depth is enormous (774 feet),[1] and as it lies surrounded on all sides by hills, more especially steep on the north side, it almost appears as if the country had been broken in two here, and the water had rushed in to fill up the hollow. Nowhere along the whole of its length, until Dores and Aldourie are reached, is there any low-lying shore. The rivers on both sides either cut through the hills, forming a gorge, or come rushing down rapidly, often ending in high falls, as at Foyers on the south-east side; and the hills in most cases rise very abruptly from the shore. When shallows occur near the shore, they would appear to have been formed by the disintegration of the almost overhanging rocks, or from the siltings of the rivers. Even at the two extremities of the loch there is not much shallow water, and where the Oich enters at Fort Augustus the water has all the appearance of great depth. At the north-east end, where the Ness begins to form, there is a bank of fine red gravel at a place called, appropriately enough, Lochend, and below this the half-river, half-loch goes by the name of Loch Dochfour, close to which is Dochfour House, with its prettily-kept grounds, belonging to the Baillies.

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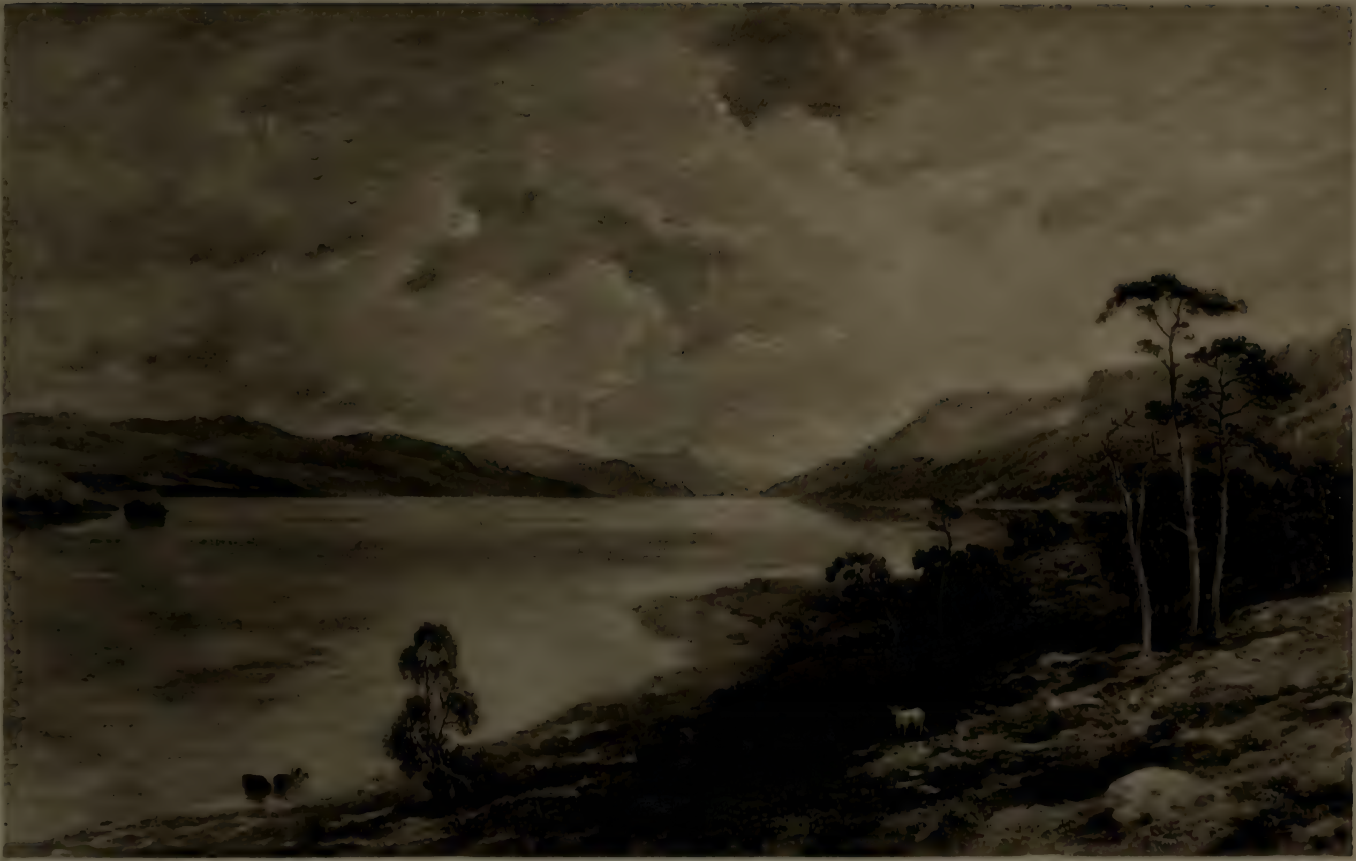
[1] On the Admiralty chart of Scotland the depth of Loch Ness opposite the Falls of Foyers is given as 129 fathoms.

From Fort Augustus to Lochend—indeed we may carry on to Craig Phadrick, overlooking Clachnaharry—the whole of the hills on both sides of the loch are clothed in wood, and though there is much planting of Scots firs on both sides, this is more evident on the north side than on the east; even the stony hills of Abriachan, with the numerous 'screes,' are all planted and dark with the green of the various species of firs. There is abundance of natural hardwood, birch, oak, etc., some of it fair timber, but mixed with much copsewood of hazel and tangled brushwood. Nearing Inverness, the hills on the south side fall gradually away before reaching Dores, which gives room for cultivation, but on the north side it is only when the comparatively flat ground through which the Ness runs that there is much cultivation, though between the Dunain woods and Craig Phadrick, which is over 1100 feet in height, the arable ground runs quite up to the top of the hill.

Though thus shut in by hills, there is only one of any great magnitude. Looking along the almost even outline on the north side, Meall Fuarvounie stands out well and alone, a great mass, round, and with a blunted pinnacle on its summit; this is a very prominent hill from many places south and east of Inverness.

About a mile from the town of Inverness two large mounds



LOCH NESS, LOOKING SOUTH-WEST FROM [illegible]

rise out of the centre of the valley. The more striking of them because the more isolated, is the well-known hill of Tomnahurich, now used as a cemetery; the other lies a little to the south of it, and is called Tor Vean. Both these hills are composed chiefly of gravel, apparently moraines, and are clothed with trees, principally hardwood, such as oak, to their summits; on the south-east side the bottom of Tor Vean has been slightly cut away to make a less sharp curve for the canal.

The valley of the Ness is some six or seven miles in length as the crow flies, and varies from one and a half to three miles in breadth. The soil is poor, the land being composed mostly of sand and gravel, but fairly good arable ground occurs here and there, and there are some fair-sized farms, as at Dochfour and Ness-side or Holm, etc. Much of the valley is wooded, and at Ness Castle the banks overhanging the river are covered with hardwood, principally beech, to the water's edge, forming a pretty picture either in the very early spring or late autumn. Close to Inverness are the islands, covered with fine trees, mostly hardwood, but containing a few exceptionally fine larches.

The Ness is a rapid river, gravelly throughout the whole of its course, with many fine pools and streams, thus affording a most excellent breeding-ground for salmon. There is no angling in the spring, as all the fish pass through on their way to the Garry, but the sport in autumn, from July to October 15th, when the season closes, is often good. The river is so broad that all fishing must be done by wading or from a boat. Few towns possess such a fine river running through their midst, and since the drainage has been conducted through a large sewer, instead of, as formerly, each house on the river-side sending its unsightly drain-pipe into the river, visible in low water for the whole of its length, the number of fish seen in the redds in the spawning season is very considerable. It is a sight interesting to both sportsmen and naturalists, as the whole of the operation is easily seen when the water is in ordinary trim. Seals and Otters are also seen here at times. We well remember seeing one of the former some way above the Cathedral on a fine warm Sunday; and only this January (1894), as we were walking home in the dusk, we saw an Otter showing his head at intervals as he swam along the bottom of the stream, in which, even thus late, several pairs of fish were spawning, and this close to the main bridge in the town.

Bird-life is fairly abundant along the banks of the river. On a gravelly shoal not far from Dochgarroch a few pairs of Terns, apparently *S. hirundo,* breed, and, at the head of the Holm Pool, a single pair of Oyster-catchers. Sand-Martins are numerous, and on the islands a colony of Rooks have established themselves.

Neither the loch nor the river ever freeze. The prevailing wind is from some point of west, and this, pouring through the Great Glen as through a tunnel, brings with it the west coast moisture, of which Inverness has more than its share in comparison with other places on the east coast. The climate is mild, and most of the ordinary shrubs and trees grow well, but the want of really good soil is a great drawback, as this has in most cases to be brought in to make a garden.

VII. THE COAST-LINE FROM CAIRNBULG POINT TO FINDHORN.

Harvie-Brown, having commenced his survey of the southern portion in the extreme east or north-east of it, and Buckley having begun his in the extreme north of the northern portion, the account from this point does not run continuously, from a geographical point of view, as regards the coast-lines and sequence of the river basins. Leaving this part discontinuous with the treatment of the Ness Valley, we go to the extreme north-east point of our whole area, which juts out into the North Sea, and proceed westward till our descriptions join again at the Great Glen.

In May 1887, whilst residing at Fraserburgh, Harvie-Brown paid a visit to the coast-line between that town and the fishing village of Gamrie or Gardenstown. This entailed a drive and various scrambling walks, which occupied a long day — from 11 A.M. to 11 P.M.

FRASERBURGH BREAKWATER

After leaving Fraserburgh by the west road, we turned to the right towards the north coast, and passed through the fishing villages of Sandside and Rosehearty, each with their extensive pier and dock accommodation, and an air of cleanliness and tidiness not usually associated with east-coast fishing villages. Exposed, however, to the whole forces of the waves of the North Sea, these breakwaters and entrances are still far from being safe or commodious, and a fringing reef of outlying rocks, whilst in some measure guarding the concrete, yet constitute a serious additional danger to approaching or storm-driven vessels.

After passing the peninsula town of Rosehearty, we struck away from the sea-coast and passed the inland town of Aberdour. The road, which by this time had reached a considerable elevation, had hitherto ascended gradually, and continues to do so until a little past Aberdour. Then the road assumes quite a precipitous aspect, in places being so steep as to necessitate passengers to alight and walk down, and one wheel to be 'sledded.' Leaving the trap near Auchmeddan Farm, Harvie-Brown and his companions struck down by a pathway to the right into Auchmeddan Den or Dene, a deep gorge almost like a Devonshire or Cornish 'Coombe,' and visited the curious village of Pennan—a very Cornish-sounding name, and a strangely nestling clump of clean and tidy sweet-smelling streets and houses. A rich red cliff, a great seam of New Red Sandstone of which it is part, shows also in a hollow to the east of Auchmeddan Dene, and rears a rugged scaur-torn face and summit as a fine background of colour to the village. Pennan Head rises some 400 feet in height, and rivals its confronting neighbour of Troup Head on the other side of the bay, about three miles farther to the west. This is a favourite haunt of artists and tourists in summer, or of local excursionists from both east and west. The tidiness of the whole little cove, dene, and village, says volumes for the energy and thrift of the hardy population.[1]

We drove on towards Troup Head—the principal object of our long drive—and continued by a twisting, tortuous, and often desperately steep ascent, crossing the county march at Nethermill on the Torc Burn. We had descended to the sea-level at this point from an elevation of nearly 500 feet, and now had again to ascend the still higher ridge which terminates in the gaunt headline of Troup. A high-lying ridge forms here what might be considered a very distinct faunal boundary between Moray and Dee, but it becomes apparent, as it retires inland it *lowers*, not *rises*, in elevation, and the higher range which skirts further inland almost parallel with the coast is the real dividing ridge.

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[1] The names of the people are mostly *West*, *Gatt*, and *Watt*.

Beyond Troup Head is the lesser elevation of Gamrie Mor, and beyond that the lower coast-line about the mouth of the Deveron, Banff, and as far as Cullen.

The scenery is now varied by the deep wooded 'dens' of the high ridges of land which run out seaward at Troup Head and at Auchmeddan, which is a similar gully on the west side. The Burn of King Edward rises within a mile of the cliff edge, and running inland joins the river Deveron about five miles above Banff. Farther inland there is a large extent of high-lying moss and barren land in the districts around Aberdour, and this is repeated again on the west side of the ridge, heather coming close down to Troup Head. The coast for miles presents a fine succession of bold cliffs, caves, and water-worn rocks, arches, and pillars, and tradition even speaks of eagles having once occupied the Head itself.

We reached Troup Head about 3 P.M., and found ourselves on the elevated nose 500 feet above the sea.

It was occupied by considerable numbers of Herring Gulls, and by a small colony of Guillemots. A little to the eastward of Troup, on a much lower cliff, there is a larger colony of the latter, but the largest colony is on the farm of Troup, a little to the westward of the highest cliffs. At this place Harvie-Brown counted over 400 Guillemots on one large ledge, and Kittiwakes lower down. Six or eight Cormorants flew off the highest ledges, and Herring Gulls were still abundant. Puffins nestle—out of sight however—round the next point, in considerable numbers, and the total assemblage of rock birds, especially of Guillemots, must be very large. Razorbills were also common, but not nearly so

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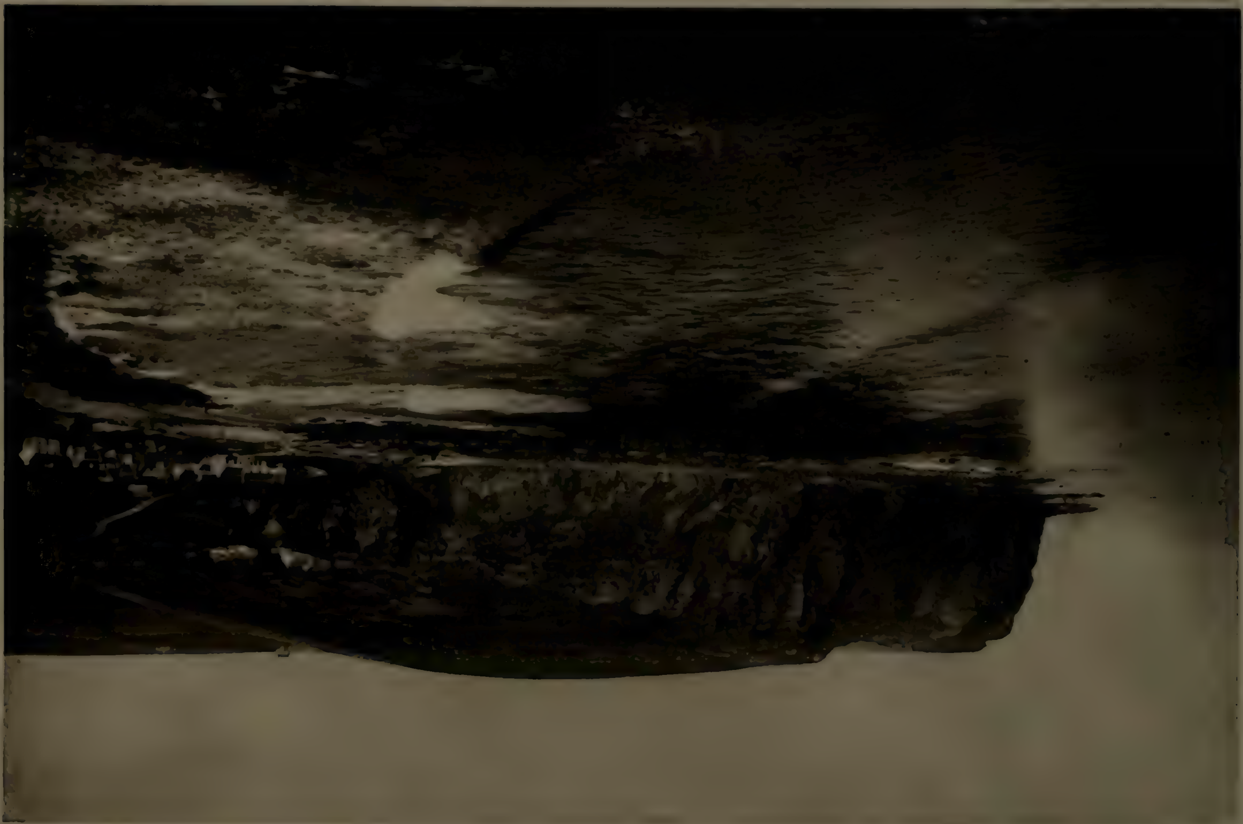

abundant as the Guillemots. We could not distinguish any Bridled birds, nor did we see or hear of any Black Guillemots. Troup Head can be seen best from a boat.

Inland a little, Troup Head bears on its scalp a growth of stunted heather, mixed with furze, which is regularly kept down by burning, and we were somewhat surprised when we flushed a brace of Grouse. Upon this we were assured by Mr. Davidson of Troup Farm that there is a nest or two every year. This lies away and is isolated from the main ridges of the Troup watershed.

After leaving Troup and Northfield Farm we rejoined the main road, and by a succession of perilously steep zigzags we reached Gamrie or Gardenstown, another but larger Cornish-looking village, with a concrete harbour and works—also a pet place for artists.[1]

We ascended again to the higher level, and by a cross road joined the main road between Fraserburgh and Banff, returning by an inland and less precipitous road, though one somewhat dreary and uninteresting. The interior of this north-eastern part of the Moray Basin area is cultivated to a height of at least 500 feet, and the whole is studded with farm-lands and steadings, yet it has a cheerless and rather desolate aspect, owing, no doubt, to monotony of colouring and regularity of distances between the houses, with their wind-beaten little clumps of garden-shelter trees. Wood only appears in masses at long intervals, and none are of much account for timber. At Byth is a considerable wood, and at one or two other places, but country gentlemen's houses are few and far apart. We were tolerably tired of the monotony when we reached at last our inn at Fraserburgh.

The coast from Banff westwards presents rather featureless low cliffs, with stony flats and fields above, growing scanty heather and gorse next to the cliff-edges. At Blackpool there is a low fringe of flat rock on the shore, and shelving slopes of stones as far as Port Gordon, largely occupied by fishermen's nets laid out to dry. The land lowers here, and there is a fringing belt of better land intervening between its uplands and the coast-line. From Port Gordon to Fochabers are extensive links and flat waste land clothed in gorse as far as the right bank of Spey—perhaps two miles square in extent. At this point the high distant lands of Moray, and beyond them the summits of Ben Aigan and Ben Rinnes, appear, beyond the pass of Sourdan and Craigellachie, and in the middle distance across the Spey the better-wooded country of the plains or Laigh o' Moray. Near Fochabers and Garmouth succeed great wastes of river-rolled channel, through which winds the many streams of the ever-shifting bed of Spey, and then we enter upon the great Plain of Moray.

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[1] Mr. George Sim wrote to us as follows :—'At Gamrie Head, and among the rocks east and west of that, goats have run wild for very many years, and are owned by no one. I saw some of them last time I visited the place, 1890.'

Our own experiences of this coast are somewhat fragmentary. On the 14th July 1890, Harvie-Brown, accompanied by Mr. James Brown of Forres, drove down to Covesea by a very tortuous and zigzag road in the Plain of Moray, past Newton Struthers, Alves and Duffus, and, sending the trap to Hopeman, walked the shore-line from Covesea, under the yellow sandstone cliffs—some seven miles. They then drove on to Burghead, where they inspected the old Roman Well, a huge cistern cut out of the solid sandstone rock, and arched over with stone and brick.

In the sandstone cliffs, which weather out very yellow and ochreous on the surfaces, are many curious arches, caves, and two remarkable stacks, which are also tunnelled by the sea. At high tide their bases are submerged, but as we saw these stacks they stood up from a bed of sand—a surrounding tide-washed plain of level sand, beneath which, no doubt, they were solidly founded upon the underlying sandstone rock, which lies at right angles with the cliff face, forming a great platform or under-cliff. But the sea cannot fail to destroy these massive pillars in course of time; indeed, they appear even now to be tottering to their fall, and are far eaten into by the water, as are also the adjoining cliffs and caves. The cliffs are about 100 feet high, and Peregrine Falcons used to frequent them, if they are not indeed still residents. With the exception of a few Herring Gulls, an odd pair or two of Common Gulls, Jackdaws, Kestrels, Rock Pipits, Starlings, and one or two pairs of Oyster-catchers, little bird-life was observed. At several points quarries of the freestone have been worked, but none apparently of recent years.

The Covesea (pronounced Cowsie—short) skerries are indeed veritable skerries, mere fringes of rock, wave-swept and barren stretching about a mile in length, and the beacon rock occupying a central position, just opposite the lighthouse, which latter stands on a promontory covered with gorse and bents about half-way between Covesea and Cullen. One of the caves near Hopeman was occupied by a family of tinkers; this cave is known as 'The Gipsies' Cave.' Sandhills extend along the whole coast-line until the Covesea cliffs are reached; and under the cliff-face at the highest part, where they recede in a wide semicircle, and at the place where 'Sir Robert Gordon's Stables'—an old smuggling haunt and cave—is still to be seen in its partially artificially concealed state, the sand has piled itself up against the rock-face, away from the influence of the waves, and become covered with nettles and long bents.

Inland from the sandhills and wave-formed stony ridges, which are most remarkable in their regularity of succession,—especially between Burghead and Findhorn—the great plains of Moray stretch for many miles, breaking here and there into ridges of sand and gravel, some of which are clad in whins, and some in broom, and some in pine-woods, sweeping in often most graceful curves and successions of hill and hollow. Far out at sea, in the middle channel of the firth, may be seen the occasional gleaming white sails of a yacht, or the dark brown lugs of the fishing-smacks returning from the haddock banks; and beyond the sea, the Paps of Caithness, and the hills of the Dunrobin deer forest, the latter within the boundaries of this Moray Basin. Farther inland again, and rising from the plains, are great ridges of higher elevation, either clad with heather, or deeply clothed in pine about the sources of the smaller burns and streams, such as Lossie and The Black Burn, which rise amongst these Braes o' Moray. Pines grow luxuriantly upon the light gravelly soil of Moray, and the Braes of Moray extend back to the valley of Spey, between Grantown on Spey and Craigellachie, Rothes, and the Pass of Sourdan.

VIII. LOCH SPYNIE.

The old Loch of Spynie extended for miles through a long shallow valley, and was undoubtedly, and within historic times, connected with the sea.[1] Even at a much more recent date, within our century, Captain Dunbar Brander can remember—as he himself told us—when wild-fowl crowded the loch almost in as vast numbers as the Black-Headed Gulls occupy it now in summer.[2] Long after the Lossiemouth Railway was laid, this was the case,[3] and a party of guns used to 'lie up' on the embankment and have miles of this marshy, shallow loch driven for duck, the birds coming over like driven grouse back and fore. Now, reduced as it is to an extent of about 100 acres, and only to the east of the railway embankment, many wild-fowl still frequent it. The land reclaimed, alas! is not of great value, but it benefited higher-lying farms by affording better levels for draining operations, and those especially towards the north-west end of the previously water-occupied area. What now remains, thanks to Captain Dunbar Brander, is about, as we have said, 100 acres in extent. It is

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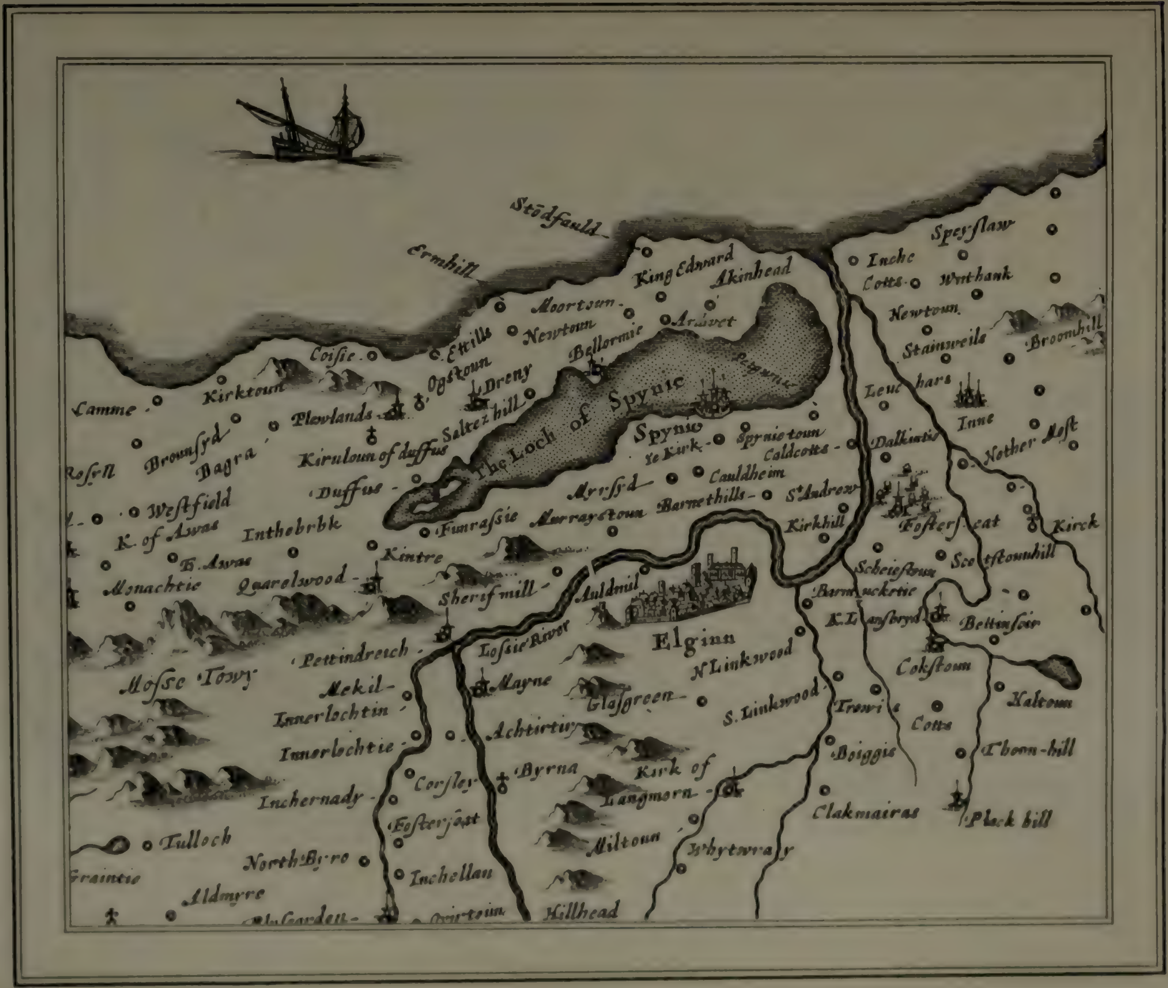
[1] See Pont's Map.

[2] For some further accounts of the changes upon the contours and lie of the coast-lines see also *Notes from Burghead: Ancient and Modern, etc.* ('for private circulation'), Elgin, 1868, in which an ancient loch—the loch of Rosyll (Roseisle)—a little to the south-west of Burghead, is mentioned. It is marked in Robert Gordon's (of Straloch) map of Moray (1640). See also Rhind's *Sketches of the Past and Present State of Moray*, Edin. 1839, pp. 4, 5, and indeed many of the books we mention in our previous and future notes and foot-notes—under Loch of Spynie and the Culbin Sands (*Survey of Moray*, 1878, p. 174).

[3] A very lucid and full account of the past and present conditions of Loch of Spynie was published in the *Elgin Courant* in December 1865, and will be found reproduced in *Morayshire Described*, in a long foot-note on pp. 337-341, which, while too long to reproduce here again, is deserving of the attention of all who desire to obtain a more thorough idea of what this famous haunt of wild-fowl was, and now is. *Morayshire Described*, etc., was published in Elgin by Messrs. Russell and Watson in 1868, or, if one desires to go still further back, past our century, minute items will be found in a volume entitled *A Survey of the Province of Moray*, etc., published in Aberdeen in 1798. Or, again, if any one desires to save himself the trouble of looking up these musty old records, a very full account has been given at the much later date of 1871, in the monographical volume entitled *The Parish of Spynie*, by Robert Young (Elgin, 1871), pp. 5 to 120.


Stōdfauld
Ermhill
Speyſlaw
Inche
Cotts
Wrthank
Newtoun
Stainweils
Broomhill
King Edward
Akinhead
Ardivet
Moortoun
Newtoun
Bellormie
Ettills
Ogstoun
Dreny
Saltez hill
Coiſie
Kirktoun
Camme
Plewlands
Brounſyd
Bagra
Kiruloun of duffus
Roſyll
Weſtfield
K. of Awas
E. Awas
Duffus
Inthebrbk
The Loch of Spynie
Spynie
Ye Kirk
Spynie toun
Caldcotts
Cauldheim
Arrſyd
Barnethills
S.t Andrew
Funraſsie
Murraystoun
Kirkhill
Leuc hars
Inne
Nether Loſt
Dalkintie
Fosterſ eat
Kirck
Scheiesfoun
Scotſtounhill
Barm uckertie
K.L anſoryd
Bettinſoir
Cokſtoun
Kaltoun
Cotts
Thorn-hill
Plack hill
Monachtie
Quarelwood
Kintre
Sherif mill
Auldmil
Elginn
Loſsie River
N. Linkwood
S. Linkwood
Trowi e
Boiggis
Clakmairas
Pettindreich
Moſse Towy
Mekil
Innerlochtin
Innerlochtie
Mayne
Glaſsgreen
Achtirtiy
Byrna
Kirk of
Langmorn
Corſley
Eſterjost
Inchernady
Tulloch
North Byro
Inchellan
Miltoun
Whytwray
Graintie
Aldmyre
Hillhead

MAP OF LOCH SPYNIE FROM TIMOTHY PONT'S MAP OF MORAVIA (1654)

very shallow, nowhere perhaps more than three feet in depth. It consists of open water interspersed with great reed-beds, the haunts of innumerable Coots, but of fewer Water-Hens, which, as Captain Dunbar Brander informed us on the spot (May 13th, 1885), have decreased in number owing to the depredations of the pike. It is interspersed also with other forms of lower growth of aquatic vegetation and sedges, the special haunts of vast numbers of Black-Headed Gulls, a few pairs of Pochards and Shovellers and Little Grebes, through which Captain Dunbar Brander's flat-bottomed punts can easily be poled by a man sitting or standing in the stern. Water-lilies have been introduced of late years, and are thriving, and we saw the reddish orange leaves of last year looking ghostly beneath the surface. Outside the boundaries of the present loch-area, and towards the east end, is a marshy piece of land interspersed with shallow pools of water, and rushy puddles—the favourite feeding-ground of the Shovellers and Mallards, and the nesting-ground of a number of Redshanks.

On all sides extend level or undulating sandy plains and ridges —similar in general appearance to others found all over the plains of Moray, some under agriculture, more under plantation, many glistening with sand and bent grass—and round the loch edges are outcrops of the curious calcareous chert or silicious semi-limestone protruding from the sandy soil. The east end of the loch has a hard and solid stony flooring, and is about two feet deep. At a certain season of the year, and during only two or three days at most, a fresh-water univalve shell rises to the surface, and is wafted by the wind in large numbers to the shore—nautilus-fashion—but at will the operculum can be drawn over the orifice of the shell, and the living animal can sink again to the bottom. There is much geological interest attaching to the close vicinity of Loch Spynie—the strange reptiliferous sandstones of Elgin being here very clearly observable, though we ourselves did not inspect them.

Beyond the undulating plains and sandy ridges, which have much influence on the clear dry climate of Elgin, and towards the coast, the sandhills and bents of Lossiemouth were visible, and these have been most suddenly occupied by breeding pairs of

Stock Doves—a pair of which we clearly identified flying low past the east end of Loch Spynie.

On the loch we could have taken hundreds of eggs of the Black-Headed Gulls, but we contented ourselves with about a dozen extreme varieties, and one egg of the Pochard—the only Scotch egg Harvie-Brown had ever taken with his own hands.

During a visit paid to Loch Spynie in 1891 we made some inquiries about the fish there.

Eels are abundant, and in warm summer weather come up to the surface, when they used to be caught by the keeper in his punt with a salmon-hook fastened to the end of a stick and the barb filed off.

Pike are dying out, and now only small ones of herring size are to be seen.

Trout were introduced, but died out; the loch is too shallow, and they were found dead after a hot, dry summer.

Perch and Roach were also introduced about 1886 or 1887, and the spawn of either one or the other was found this year (1891), and in 1893 Perch became numerous, and reached the weight of over 1 lb.

On another occasion in 1892 we had an opportunity—thanks to Dr. Gordon—of extending our personal knowledge of the area around or near to Loch Spynie. We drove down from Elgin first to Pitgaveny, and then on along the road which follows the margin of the old drained Loch of Spynie, past Duffus to Lossiemouth. At Briggs Farm are fine examples of raised ridges of old gravel beach rolled in evidently from north-eastward, and now several miles inland; an extensive 'midden' of oyster, cockle, periwinkle, and other edible mollusc shells may also be traced. We could easily see the extensive area at one time covered by the sea and Loch Spynie, and the deep trench made by the proprietors in order to drain it. What is now poor and rather sour soil would have made, probably, a splendid oyster-bed, and at least the naturalist may deplore that such a splendid sheet of water was destroyed.

We visited also Lochnabo (May 13th, 1885)—a lovely loch, embosomed amongst fine woods of considerable size, about three miles from Elgin and the same from Pitgaveny. Old pine, beech, and long heather were its surroundings, and its waters are famous for the fine Lochleven trout which have been introduced by the Duke of Fife.

IX. THE PLAIN OR 'LAIGH' OF MORAY.

Looking north from the narrow northern entrance of the Glen of Rothes, one can see afar off the yellow sandhills of the coast near Lossiemouth, and here and there, in a favourable light, the gleam of occasional white breakers beating upon the rocky fringe of coast outside. Nearer lies a great stretch of the lovely undulating Plain of Moray, which, as a whole, may be taken as stretching from the mouths of Spey in the east to the mouth of Findhorn in the west. This vast plain covers an area of 20 miles in length between Spey and Findhorn, and of some 8 or 10 miles between the coast of the firth and the heathery slopes of the Braes of Moray, or the hill-ground which forms the lowest north-east extension of the foothills and moors of the Monadhliath watersheds. Viewed from the plain, the land rises, by gentle gradients, through stripes or acres in places of brilliant gorse in bloom in May, or by long plantations, amidst grass and agricultural land, until the higher rolling heathery ridges are reached. The plain itself is undulating, or broken up into fertile haughs and hollows by round-shaped hillocks clad in pine-trees, once sandhills washed by ocean's verge, and the long ridge of the once bare, now pine-clad, Heldon Hills, which protect Pluscardine from the bleak north wind.

Perhaps nowhere in Scotland is a more perfectly lovely pastoral and richly varied agricultural expanse to be found, which, while affording rich pasturage and crops, yet is at the same time so filled with quiet, yet diversified, scenic beauties.

The Glen of Rothes—mentioned as a *point d'appui* from whence to view the eastern portion of the plain—cuts through the dividing spur of hills, the drainage areas of which slope north and north-west towards the Moray Plain, and southward and south-east towards the Spey valley. This dividing spur is at last cut through by the Spey itself, at the Pass of Sourdan.

The Glen of Rothes is narrow and wooded at its north end, and also at its south entrance, but widens out around the watersheds of its tiny streams, into a long oval and level haugh, wooded round its edges, yet closely approximated to the open grouse-moors above. The handsome residence and shooting-lodge and offices of Glenrothes or Birchfield occupy a lovely site upon the east slope.

The Lossie river rises amongst the Braes of Moray, and runs a comparatively short course past Elgin (having been joined by the Black Burn, which runs past Pluscarden) through the Laigh of Moray and by the Loch of Spynie. Though a small stream under normal conditions, it asserted itself with considerable violence at the time of the great floods of 1829, as will be found fully treated of in Sir Thomas Dick Lauder's volume. The whole historical aspect of Loch Spynie—formerly such a paradise for sportsmen and the haunt of the Wild Swan—will be found fully treated of also in Shaw's *History of Moray: an Account of the Province of Moray*, Charles St. John's *Sport in Moray*, and many other volumes among the unusually rich literature of this part of Scotland.

Remarks on Climate and Climatal Changes.

The climate of the south side of the Moray Firth is universally admitted to be dry and salubrious. We cannot do better, in speaking of it in general terms, than quote the MS. of the late Mr. George Norman. Mr. George Norman[1] says: 'Indeed, in no part of Great Britain the writer is acquainted with is there so remarkable a combination of high winter temperature with excessive dryness of soil as this part (*i.e.* Forres) of the county of Moray.' These and the following remarks by Mr. Norman, though especially applied to the district around the Forres Hydropathic Establishment where he resided in 1867, are, at the same time, *almost* equally applicable to a much larger part of the coast and Laigh of Moray, and even, with differences of altitude, to the higher valley of the Spey—indeed, over almost the whole gravel-covered areas of our district south of Inverness. Mr. George Norman continues: 'During the last winter and spring the meteorological returns show that this district had generally a considerably higher temperature than Paris or the north of France; and, as an instance of the exceeding mildness, I may mention that peaches, nectarines, and figs ripen admirably in the open air, whilst the Himalayan bamboo stands quite uninjured by the winter frost. The tree-mallow (*Lavatera arborea*) thriving well, will, to the botanist at any rate, indicate the climate of Forres better than any attempt on my part. I may, however, mention that specimens of *Magnolia acuminata* in the gardens at Dalvey fully 30 feet high, alone indicates the blandness of the climate, while the existence of rare insects, which hitherto have only occurred in the south of England, may be quoted as another indication of its notable mildness.

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[1] In February 1868 Mr. Norman sent a short sketch paper to *The Zoologist*, *q.v.* p. 1065, but it was upon the suggestion of Mr. G. W. Anderson that he afterwards elaborated his notes for the special purpose of a contribution to a *Guide to Forres and its Neighbourhood*, which was at that time contemplated by Mr. Anderson, who himself supplied us with the information. The Guide-book, however, was never published, nor were Mr. Norman's papers put in type. We have therefore not considered it out of place to reproduce these notes, made by such a keen observer and excellent naturalist as Mr. Norman was acknowledged to be, and whose early death naturalists must deplore. These notes are now in the possession of Mr. Anderson, bookseller, Forres, who kindly lent them to us for use in our present work.

'The rainfall is, I believe,' continues Mr. Norman, 'under 23 inches. This, taken in connection with the physical lay of the adjoining country, where high mountain ranges towards the west and north-west intercept the rain-charged Atlantic clouds, will explain, I suppose, the cause of the dry and equable climate. The same cause undoubtedly operates in arresting thunderstorms, for this district is exceedingly free from electrical disturbances. In proof of this, no trace of a thunderstorm has been seen or heard by the writer during the past unprecedentedly hot summer, nor in the summer of 1867.[1]

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[1] But in August 1893, after a protracted course of exceptionally dry weather, which began in February, thundery weather, fiery clouds, and flooded water, with oppressive heat continued for many days, as experienced by ourselves when at Fochabers: and we had a similar experience in August 1894.

'Coupling this with the rare beauty and variety of the neighbouring district, combining as it does extensive tracts of magnificent forest, inland lakes, and a fine rocky sea-coast, the enormous sand-dunes of Culbin, with extensive heather-clad moorlands, render it the *beau-idéal* of a country for the naturalist, in addition to the reputation it has gained as a favourite locality for the invalid.

'The botanist will find the country full of interesting plants and ferns.[1]

'The Bay of Findhorn contains many interesting forms of brackish water and marine Diatomaceæ, and other interesting objects for the microscopists.

'In fungi the district is a perfect paradise, and although the writer has no claims to be reckoned a fungologist, still in his walks he has observed species of great beauty and rarity; indeed, some of the species seen seem not to have been recognised in Britain before.[2]

'The Forres Museum contains the valuable specimens illustrative of the local geology collected by the late Lady Gordon Cumming of Altyre, many of which are of great rarity, much enhanced in interest from the fact of their being original specimens bearing the labels of the illustrious Agassiz. In the same Museum are many specimens belonging to the late Dr. John Malcolmson; also many unique ones from the collection made in the Sewalik Hills by the late Dr. Hugh Falconer, the founder of the Museum.

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[1] '*Polypodium Dryopteris* and *Phegopteris* in profusion; *P. vulgare* everywhere. *Lastrea Oreopteris* and *dilatata*, and *Polystichum lobatum*, with *Blechnum boreale*, are very common. Other kinds would doubtless reward the industrious collector. That little gem, *Linnæa borealis*, along with *Pyrola uniflora*, both very scarce as British plants, are found within a few miles of Forres.'

[2] '*Agaricus Bongardii* grows in profusion on the Culbin sands, and nowhere else, I believe, in Britain. The beautiful and fragrant *Cortinarius glaucopus* is frequent among heather in the pine forests, while in the Chapeltown Muir wood the writer found, for the first time in Britain, the singular and rare *Hydnum scrobiculatum*. *Lepiota cinnabarina Terryi* is also found here, and hitherto in no other station, either in this or any other country. The splendid coral-red *Amanita muscaria*, from which the Siberians brew their intoxicating beverage, grows by the ton in the pine-woods. It is well our brewers are not yet acquainted with the plant. These woods swarm also with highly delicate edible kinds, which, were it not for ignorant prejudice, would be highly esteemed by all alike as delicious and highly nutritious articles of diet. Among the most favoured and wholesome kinds we find the exquisite puff-ball (*Lycoperdon*); *Boletus edulis*, and *scaber*; *Cantharellus cibarius*; *Lactarius deliciosus*; *Morchella esculenta*; *Agaricus prunulus*, *arvensis*, *Clitopilus* and *Tricholoma gambosum*, with hosts of other kinds, in the utmost profusion.'

'To the entomologist, the very mention alone of some species of Lepidoptera which occur here in profusion will at once show that the country is a veritable land of promise. The writer may here remark that he has only had one or two years' collecting, consequently many species may have escaped his notice. Moreover, he has only paid attention to the Noctuidæ, of which alone he has taken, "at sugar," considerably more than the species mentioned in the foot-note.'[1]

So much, then, for the climatic conditions of the neighbourhood of Forres, and, with slight variations, the above account by Mr. Norman may hold good for the whole Laigh of Moray, and extend westward through Nairn to near Culloden, and eastward to the Spey—Elgin, however, being rather less invigorating in comparison. But when one crosses the Spey, and goes over the watershed of Spey and Deveron, a great atmospheric change, especially in spring, is at once apparent, and greater cold and less salubrity of climate is met with. This is still further accentuated when one passes over the farther watershed into the northern portions of 'Dee.' Nothing can be more marked, especially in a late spring or generally backward season, than the comparative growths of trees or cereals on the high rolling lands east of Spey, and of those west of the same river within the confines of the Laigh of Moray.

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[1] '*Agrotis cursoria*, *aquilina*, *præcox*, and *pyrophila*, *Triphæna janthina*, *fimbria*, *Curtisii*, and *subsequa*—the last by no means rare here, but in most parts of Britain very much so; *Noctua Dahlii* in swarms, and *bella*, *umbrosa*, and *neglecta*. *Trachea piniperda* frequent at sallows and in the pupa state under moss and pine needles. The sallow blooms in the early spring swarm with *Teniocampæ*, including the rare *gothicina*. *Euperio fulvago* (not uncommon); *Hadena glauca*, *Pisi*, *rectilinea*, *adusta*, *thalassina*, and *contigua*. *Polia chi* very abundant; *Epunda nigra* (even more so), and *E. lutulenta*, *Aplecta occulta*, and *nebulosa*; *Calocampa vetusta* and *exoleta* (literally swarming); *Xylina rhizolitha*; *Anarta*, *Myrtilli*; *Heliothis marginata*; *Miselia Oxyacanthæ*, *Agriopis aprilina*, *P. meticulosa*, while *Brephos parthenias* and *notha* are of frequent occurrence in the early spring, flying near birch and sallows in the Altyre woods; *Plusia V.-aureum* abundant, *Festucæ*, *interrogationis*, and *bractea* occasionally; *Stilbia anomala* frequent; *Xylophasia polyodon* (dark Scotch form frequent); *Gonaptera libatrix*, and many others.

'In addition to the *Noctuæ*, *Sphinx Convolvuli*, *Acherontia Atropos*, and *M. stellatarum* are common in some seasons. *Cossus ligniperda* is abundant in the larva state, doing vast injury to the oaks and birch-trees in the Darnaway and Altyre woods. *E. Blandina* (one of our commonest butterflies), *H. Semele*, *C. Davus*, *V. Cardui*, *V. Atalanta*, *A. Selene*, *Euphrosyne*, *Aglaia*, and *T. Rubi*, all more or less common. *Endromis versicolora* is very common in spring in the Altyre woods, the males flying like mad, and very difficult to capture; the females sitting quietly on the sprigs of birch-trees.'

The climate of the Spey has this distinct motto attached to it:—'High and dry.' The soil over a large part of its valley is of the same gravelly, dry nature, growing wealth of balsamic pine-trees. At 900 feet elevation, the well-winnowed atmosphere has perhaps the most elastic, bracing, and health-restoring properties of any locality in Scotland. From the Plain of Moray to the valley of the Spey, the higher reaches of its tributaries, and the Carn districts of the Cabrach, any one in search of health can take a perfectly steady and ever-increasing dose of ozone, feeling lighter, better, livelier with every successive change, as we have ourselves experienced, even within a few hours. It is indeed a glorious country, and is becoming well known throughout its length and breadth—from Kingussie down to Grantown and Aberlour, and even to the coast, and far up from Nairn and Forres, among the hills at Tomantoul, and in Strathnairn and Strathdearn, and even among the Braes of Moray—to an ever-increasing multitude of summer visitors.

It is needless, perhaps, to point out the bearing which surface geology has upon climate, and climate upon numerous, or all, forms of life, and the true meaning of faunal areas. Surface geology undoubtedly has some claim in assisting to prove the intimate connection which exists between many branches of Natural History.

Surface geology takes us back to a remote past, and gradually leads up to our study of the present—even offering connecting links through the bounds of tradition and history. Surface geology also acts directly upon climate, climate upon botany and zoology; and the Great Ice ages have acted as pioneers and 'surfacemen' in laying down the great drift, and even bearing germs of future life.

As we are on the subject of climate, it may not be out of place to add a note upon that of Kingussie, which is the town farthest removed from salt water, and therefore may in some respects be looked upon as the antithesis of Forres.

The valley is elevated 850 feet above the level of the sea, and is in north lat. 57° 4″, and west long. 4° 5″. At 750 feet above the sea, the mean temperature at 8 hours 51 minutes morning, from 1st November 1838 to 1st November 1839 was 48° 77″.—(*Speyside Guide*, Forres, 1852, p. 158.)

So much then for the climatology and normal state of the weather of the area. But we ought not to pass on without some slight mention of unusual or abnormal incidents having distinct bearing upon the fauna and flora, and physical conditions generally.

The great irruption of the sand-drift of the Culbin and Nairn sands and coast we have still to speak of, and its progress afterwards. The great floods of 1829 and 1832, causing infinitude of damage, are duly recorded and reported upon in Sir Thomas Dick Lauder's most deeply interesting volume,[1] often referred to (see Knox's *Autumns on the Spey*, p. 95). In our faunal lists, here and there will be found some slight references to the effects of these vast floods upon bird and animal life. The notices are only brief, because we have no actual proofs of direct change, except the destruction of certain species, such as Rabbits, Hares, probably Badgers and Moles and Hedgehogs: and among birds the strange disappearance, after these August floods, of Chaffinches and Sparrows, at and about the district of Ballindalloch and Aberlour; and, says Dick Lauder:—'the elements raved with unabated fury, so that not a bird could dare to wing the air.' Sir Thomas relates that at Garmouth alone —*i.e.* about the mouths of Spey,—among the carcases of animals, there were 'millions of dead Hares and Rabbits.' Even allowing for descriptive licence, Sir Thomas would not have used the expression, unless with extreme good cause. Therefore we hold, although all the results and consequences of the great Moray floods upon animal life cannot, perhaps, be now easily arranged or tabulated, still there can be scarcely any doubt these results were of considerable and direct importance. We can only refer our readers for details to the many accounts of both the Culbin drift and the 1829 floods, which it would be needless for us to repeat.

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[1] A volume is now, we understand, in preparation, entitled *Floods of the Nineteenth Century*, at the office of the *Northern Chronicle*, Inverness, which it is presumed will treat, monographically, the subject of these latest great floods. With this volume in view we think it unnecessary here to introduce our own notes on this subject further than we have already done.

Since these great floods nothing so disastrous has again occurred, but floods in 1891-92, from a different cause, viz., the melting of snow, made the nearest approach to such a calamity, bridges and roads having been swept away over four or five counties, as our County Councils have had good cause to remember. Thus the late Lord Tweedmouth assured us:—'Not a bridge was left in Strathglass, and all the arable land in the strath is covered with large boulders or deep sand' (*in lit.* 30/3/92). Not a doubt, these snow-floods made the nearest approach to the great 1829 floods within the memory of man. The whole Findhorn Haughs, so famed by Sir Thomas Dick Lauder in his volume, were again submerged for a very considerable distance right and left of the county road. The order of the seasons also, as usually experienced in Moray, appears to have been reversed. Snow lay, and persistently lay, west of the Spey, but little comparatively on the east bank. Usually the light, porous, sandy, and gravelly soil of Moray drinks in rapidly all moisture, rain, or snowfall, but the colder, damper, stiffer clay-lands and old sandstone conglomerate of the east side retains it longer.

Of severe winters we may instance many, but perhaps that of 1878-79[1] is a good or extreme example. In that winter the Spey was frozen over for several weeks in many places, and at the higher levels trains on the Highland Railway were severely blocked—as at Dalwhinnie, and at Dava, and many other points.

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[1] Since the above note in the text was written, an even more severe winter has been experienced throughout the whole of Scotland, and has been especially phenomenal in the north-east of the country, and within the area of the Moray Basin—viz., that of 1894-95.

Great numbers of birds resorted to the sea-beach; Starlings, Wrens even, and Rooks left the inland localities.

Then yet again, if 1892, or the winter of 1891-92, was abnormal in its obvious effects upon the country and climate, the summer—and indeed the spring also—of 1893 were equally phenomenal on account of the great and general heat and long-continued drought. The impulse given by this quite phenomenal season to distribution and extension of the range of certain birds, we treat of very fully under the species most affected by it, though at the same time the extension of some species was quite as noticeable in 1892, perhaps from varying causes, not directly connected with climatic conditions.

We have not space to descant fully upon the facts we observed during the summer of 1893, but we may be allowed, perhaps, to at least indicate very shortly some of the peculiarities of that season.

The season was in almost all things from one month to six weeks earlier than the average, as shown by the succession of facts. Great heat and great drought were experienced in May, a month usually cold and variable, and the Gowk or Cuckoo storm, usually very punctual, was scarcely felt or recognisable. This storm generally occurs in the first half of May.

On the river Deveron, trout (*S. fario*) were in prime condition in May, even near the upper sources of the river, 1000 or more feet above the sea: and by the middle of June in the same high reaches they had begun to lose it: this was six weeks before their usual time.

Birds themselves hatched off weeks before their usual time. We found Grey Wagtail's young flying as early as the 8th of May.

Migratory birds (see under Swift) arrived from seventeen to twenty days earlier at their old breeding haunts.

Small fruits—strawberries, etc., and wild hill-berries—were quite a month earlier in ripening, and most noticeable were the effects this had upon bird-life. Certain species of birds, such as Missel Thrushes and Ring Ouzels, which usually descend from higher breeding altitudes, to feed upon the smaller fruits of the gardens in August, appeared upon the scene in June, and then returned to the upper districts to feast upon the hill-berries, such as crow-berry, avern-berry (*Rubus*), and cranberry, and in August were seen flocking at much higher elevations amongst the Carn districts than in normal seasons and under normal conditions.

But other effects which might seem to have a contrary influence should also be noticed. The drought produced abnormally shrunken rivers. Water-insects generally were destroyed by exposure to the sun and air over nearly one half of the river channels, and trout were confined to one half of their normal water area. The Phryganidæ that remained within the limited area —quite one half of the full supply having been destroyed— were ravenously devoured by the trout, which could be seen rooting amongst the larvæ on the stones like pigs—tails up and heads down; hence their rapid rise in condition and subsequent rapid falling off. Insect-life, of aquatic origin, on the wing at least, was most remarkably scarce. Long-continued drought of course affected the supply of ground food of other kinds, such as earthworms, and caused abnormal development of other forms of life.

On the occasion of a small spate in June (June 22nd), which only affected surface drains, there was an abnormally early run of very small grilse and sea-trout as far up the Avon as Inchrory. The extremely low state of the rivers encouraged an extraordinary growth of weed, and a deep scum or glut of decaying vegetable matter gathered upon the channel. Only by stirring this up with their noses, did the trout succeed in reaching the larvæ of caddis and Phryganidæ in their cases of sand and stones affixed to the bottom; and fly could not hatch off through this disgusting accumulation of dead vegetable matter—another further reason for the very patent absence of winged insect-life. The absence of fresh-running water or spate-water caused little movement among the larger trout, so that the upper reaches of the rivers were less frequented than usual by them. On the other hand, Salmon hung about the coast and lower river-reaches, and those that were not netted off at a comparatively early date left the coast, or, if late in ascending, rushed past and onward to the upper reaches. We cannot speak positively as to this, but are inclined to think they left the coast.

We could instance many other phenomena occurring in this abnormal summer, as observed by ourselves in Moray alone, but already we have extended these remarks sufficiently to call attention to the climate and climatal change of the abnormal season of 1893, and have already, perhaps, exhausted the patience of our readers.[1]

X. THE SANDS AND SHORES OF NAIRN AND CULBIN, AND THE BAY OF FINDHORN.[2]

Travelling north out of the Spey Valley towards Forres, and soon after Dunphail is passed, a traveller who takes interest in the surrounding scenery, looking forward from his seat in the window of the train—say on a clear, fine day in spring or early summer—sees a far-off gleam of yellow, bright in the strong sun and clear atmosphere, and beyond, in dark contrast, the waters of the Moray Firth. This is intensified and accentuated if the far-away shore and water are under the shadow of a great northern cloud, and if the sun, glancing away as it were beneath the cloud, lights up these dazzling sands and the dark sea, shot with cat's-paws in a crisp breeze beneath the dark pall of cloud above, the scene is indeed lovely. Any one residing at Forres may witness these beautiful gleams of gold and sunlight from the summit of the tower of Forres, if he chooses his time and season; and thus also appear the sands of Culbin to the traveller over the watershed between Spey and Findhorn who looks ahead!

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[1] Further interesting data as regards the rainfall and climate of this area may be gleamed by a perusal of the 'Twelfth Report of the Fishery Board of Scotland,' which contains a good map of the Salmon districts and all the river watersheds, and also a map of the Mean Annual Rainfall of Scotland for the twenty-four years from 1860 to 1883, with much accompanying information of interest referring to our district (*op. cit.* Appendices, pp. 10, 11).

[2] Concerning the Culbin sands (pronounced *Coobin*), there is quite a large store of descriptive matter written, much of which, however, is repetition. Their history, so far as known or recognised, has been pretty thoroughly threshed out in the many volumes and pamphlets relating to the History and Topography of the Province of Moray. Chief amongst these are the accounts given in Shaw's *History of Moray*, and the later accounts compiled by Mr. John Martin, Mr. Black, Provost of Nairn. We have avoided repetition as far as possible, and hope to be able to confine our remarks to the results of personal tours of inspection, only referring to previous accounts where it is desirable to illustrate or explain natural phenomena, etc. But in this foot-note we may take occasion to mention, among other accounts, that given in *A Manual of the Antiquities, etc. etc., of Moray*, 2nd edition (Elgin, 1823), pp. 68-74, where the earliest accounts, such as Dr. Trussler's Chronology, Boethius, Fordun, and early historians, are referred to.

Of later literature we may mention, 'Report on the Archæological Examination of the Culbin Sands,' by Mr. George F. Black (*Proc. Ant. Soc. of Scot.*, vol. 1890-91, with Map). Also, 'Notes on a Visit to the Culbin Sands, Morayshire,' by James Barclay Murdoch, Hon. Sec. Geol. Soc. of Glasgow (*Transactions Geol. Soc. of Glasgow*, vol. ix. p. 407).

Of the ancient history of the Garden of Moray and the great sand-inundation we prefer not to speak in detail. Its aspects have not changed greatly during the past hundred years. The history, mixed up to a large extent with tradition and vague uncertainty, is not, we consider, worth our time and trouble to unravel, for the purposes of our present volumes. Those who are curious from an antiquarian standpoint will find abundant scope for theory and deduction from facts, amongst the earliest of our general and local historians. Thus, if we entirely credit, over such a span of years, the records of Hector Boece, Buchanan, and others, we find the great cataclysm or extraordinary sand-inundation took place at varying dates about the end of the eleventh century or beginning of the twelfth century, suddenly overwhelming the fertile 'Granary of Moray.' The said Granary of Moray, however, was, as late as the seventeenth century, spoken of as existent, and its site described. The probability is, therefore, that the principal devastation must have been completed prior to the year 1695, as is narrated in the Act of Parliament then made to prevent the pulling of bents, *Ammophila arundinacea,* thus: 'The Barony of Culbin, and house and yards thereof, is quite ruined, and overspread with sand.' The real rental of the parish of Dyke has been affected to the estimated extent of £3000.—(Forsyth, *A Survey of the Province of Moray,* p. 175.)

Since then there seems to have been evidence of a more gradual approach of the sand over the fertile land, before the influence of prevailing winds from the west, a cycle of change still found to be progressing, and continuing even at the present time.[1]

Findhorn is a typical Scotch fishing village, once very thriving, and driving a good trade when the branch railway led down to it from Forres. But since that line came to be abandoned, Findhorn has resumed its former quiet fishing life, only the salmon-nets, which are leased by Mr. Bisset, yielding much return in fish. Findhorn stands on the right bank of the narrow entrance from the sea to the Basin or Bay of Findhorn, practically the present embouchure of the river Findhorn.

On the occasions on which we have visited the Culbin sands from the eastward we have driven down to Findhorn and returned there in the evening, or, as elsewhere indicated, have driven down to Kincorth and returned by Findhorn village, thence driving back to Forres. Arriving at Findhorn on the occasion of our earliest visit—June 1885,—a local fisherman ferried us over to the eastern extremity of the Culbin sands, which stretch in continuation with the Nairn sands, from Nairn to Findhorn. Standing on the summit of one of the highest of these sand-dunes, and looking away inland, one sees tier over tier, ridge after ridge, of dazzling sand, steeply sloping on the west sides, abruptly breaking over still more steeply on the east sides, many without a trace of vegetation, others scantily tufted with bent-grass—white and blinding in the strong shimmering midsummer sun. When a high wind blows over this desert of sand, eddies curl and crest over their tops, whirling up miniature columns and *bending claws of sand*,[2] giving a realistic picture of a vaster Asiatic 'Simoom.'

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[1] Amongst the antiquarian treasures found in the parish of Dyke and the Culbin sands we can instance the following, seen by ourselves in the fine local collection at Dyke Manse, the property of the Rev. Mr. M'Ewan: 'Arrow-heads, holy-water font from Pluscarden, celts, coins, broadsword, beads, hand-mills, querns, old lateral hand stone-mill and stone of ditto, tinder-boxes, annulæ, curious water-worn stones, a few bronze axe-heads of two or three shapes, large double-handed stone axe, flint and steel,' etc. etc., a collection well worthy of inspection. In the Antiquarian Museum in Edinburgh there is a very extensive collection, expressly collected for the Society amongst the Culbin Hills, which is also well worthy of inspection.

[2] A descriptive ideal, only to be recognised by those who have stood and watched the strange scene for hours, as Harvie-Brown has done on several occasions.

But in the long winding hollows bent grass grows more luxuriantly, and the fierce wind sweeps clean long reaches of water-rolled pebbles of a former beach—the favourite haunts of Ring-Plover and Tern—and more inland the hollows are clothed in creeping bush and sand-loving dwarf scrub, the white sandhills rising abruptly on either hand. Outside the line of sandhills, and along the ocean's verge, are miles of clean wet sand, smooth and gently sloping, between Findhorn and the Old Bar of the ancient river Findhorn, whose former course remains to some extent marked out by the deeper valleys of the sandhills and the silted up Loch of Buckie.

The sands of the Culbins, as on many other links of Scotland, are so finely comminuted as to seem almost like powdery snow in consistency; and the wing-strokes of a rising bird can be seen, left impressed on the surface, as we have ourselves repeatedly observed. Moreover, where the Ring-Plover or Shieldrake, or the rarer Sand-Grouse, runs (or waddles) over the loose-grained sandhills, a running half-obliterated mark only is left as the light sand runs towards the centres of the footprints. (See under Sand-Grouse.)

The Culbin sandhills occupy an area of about seven (?) miles in length and three in breadth, between the mouth of the Findhorn and Findhorn Bay, and nearly to Nairn, and reach altitudes of from 10, 20, 30, 60, to 120 feet. At one time the whole extent of ground at present occupied by these vast piles of sand was equally fertile with the Laigh of Moray.

In a gale of wind these sands of Culbin present to the eye a moving mass of drifting sand, climbing one great sandhill of some 70 or 80 feet in height, but going into spin-drift of sand at the summits, and pouring down in miniature avalanches and sandfalls on the lee-sides, and rushing again headlong up or along the sides of the next, with a continuous yellow rippling gleam as of thousands of yellow-fleeced sheep. But this should be viewed from some safe outpost and shelter, away from the sandhills themselves: because amongst them the eyes and the senses become dimmed and blunted, and the walking becomes heavier and heavier with every step, for boots and pockets become heavily laden with sand, which penetrates the smallest interstices of one's garments, and which there appears to be no possibility of keeping out.

The tale of these sandhills is a strange one. They appear to perform, as it were, an enforced and continuous circular migration, under the influence of three distinct agents, viz., waves and tides, wind, and the river Findhorn. The waves and tides of the Moray Firth first formed them; the wind then drifted them to the eastward; the river Findhorn arrested them, bearing the particles again far out to sea, for the waves and tides again to play with—and so the tale runs on.

To arrest this whelming easterly drift, the late Mr. Gregor of Forres—the well-known arboriculturist and seedsman—recommended the experiment of planting upon the estate of Dalvey. As originally laid out, these plantations were not of great extent; but, as predicted by Mr. Gregor, have self-sown many miles of the sandhills and hollows from the westward to the eastward, an area now of some six miles in length by three in width, having covered the former dreary waste of sand. The woods were first planted about 1850, or a little earlier; and there seems to be little doubt they will continue to advance, and in due course of years clothe the remaining six or seven miles between their present outskirts and the mouth of the Findhorn. People now living can remember an uninterrupted stretch of sand-dunes all the way between Nairn and Findhorn. In a couple of decades the older first-planted trees will become valuable timber, and be about sixty years of age. Viewing the sandhills from the verge of the forested portion in the west, from near the shore opposite the Old Bar, it is interesting to observe the straggling vanguard of the pines, and the first tufts of bent grass reaching out from the edge of the wood.

These interminable wastes of sand do not usually present good subjects for photography. Their dazzling yellow colour and vast wavy outlines, scarcely distinguishable against one another, or against a clear sky, are like recurring billows of ocean or great Pacific rollers. All shadows lost save from the passing clouds, the sterile featurelessness, vast monotonous distances, and far away backgrounds, all combine to puzzle the photographic artist. Only perhaps in early morning or late evening, under the influence of a rising or setting sunlight, or under phenomenal effects of daylight, such as a dark bank of cloud in the north and brilliant sun upon the sandhills; can definite contours and skylines and shadows from the fleeting clouds be obtained. Under certain other atmospheric conditions also, these yellow sandhills seem as white as driven snow if viewed from a distance. Under most ordinary conditions imagine a rolling inland agricultural country, which for miles in succession has been ploughed and prepared for seed in spring, and rolled after the seed has been just sown, without a hedge or even a wire-fence to throw a shadow to relieve its sameness, then place it under a brilliant sun and cloudless sky, and one could not tell it from the Culbin sands, or the Culbin sands from it, if it were painted or coloured yellow. Much as we desired to illustrate this unique place, neither photography nor the artist's brush has been able to give us anything that we could reproduce, which would give our readers a proper idea of it, and we have been compelled to abandon the hope of illustrating it at all. Sometimes, owing to mysterious aërial currents, breaks appear in the monotony. Little ridges of sand get heaped up to the height of an inch or so above the general level, and these miniature ramparts give a little shelter to the sand immediately to leeward. Thus scalps or clean smooth spaces, or trays of all shapes and sizes, appear and slightly relieve the deadness of the surface. Break the surface of one of these trays with a footprint, and then do the same close to their margins where the sand is seen drifting before the wind, and it is found that while the impression made upon the former retains its sharp edges and correct outlines for many minutes, those made around the edges at a few inches distance, rapidly fill up again with the drift. Where the sand has by some former eddy or air-current been formed into a sharp-edged cone or ridge, the sand in a heavy wind takes the appearance of a water- (or sand-) fall, and we have watched a new sandhill thus in course of formation, and endeavoured to make a rough sketch of the appearance. As has been shown by previous writers when describing the Culbins, a gale of wind acting upon the higher tops causes the extraordinary appearance of a vast succession of sandfalls all over the ranges, falling over the crests, and again piling up under the lee. Thus in a single day or night the apparently permanent general features may become totally unrecognisable the one from the other. On the hummocks in the hollows held by the roots of the bents, and among the lower plateaus, the wind waving the wiry needle-pointed stems and blades of bent grasses makes curious semicircles in the sand, these points cutting deep compass-like markings around the centres. This we have endeavoured to illustrate along with the sandfalls and the footprints of the Sand-Grouse in our second volume under the article upon that bird.

The most characteristic as well as most extensive view of these marvellous sand-dunes may be seen from the top of the highest Culbin, or Kincorth Hill, looking away to sea over the Moray Firth, with the distant background of the Ross-shire hills; but from the same *point d'appui* a circular panorama of great expanse and interest is visible. There is first the Moray Firth, dappled with 'cat's-paws' and 'white horses,' crisp and dark blue, and a vast extent of coast-line extending from Burghead in the east to near Fortrose in the west; and beyond the dark sea, on clear days, the distant land and inland mountains form an outer setting, stretching from the Ord of Caithness and Tarbatness of Cromarty, in the north-north-east, past the grim portals of the Sutors and the Black Isle, to the far-off head of the firth near Inverness. Inland, westward and south westward from our position on the summit of Kincorth Sand Hill, the inner margins of the Culbins are clothed in bents and clumps of birch, and here and there a straggling, struggling wind-bent pine—the advance-guards of the army of the pine-trees which shut the sand out from the cultivated field behind. Due south, south-east, and south-west, over the tops of the pine belt, one can see the rich cropped and wooded areas of Moray and Nairn, stretching away to the base of the distant Braemoray, and in the farthest distance even a peep may be had of the giant Cairngorms beyond the Spey, with patches of late spring snow still lying within the arms of the 'Corrie of the Arm Chair.' Low over the bents to eastward, and Major Chadwick's belt of pine-wood, lie the bay and village of Findhorn and the bay and town of Burghead, forming a marvellously fine panorama. Yet close though these positions are to Forres, how few English tourists who pass that town even know of their existence!

Bird-life in the centre of this Sahara is at a discount. A pair of remonstrative and wailing Curlews have their young among the bents by the verge of the pine-belt, and in a small clump of birches Willow Warblers can be heard afar off or seen trooping through the maze of leafage, and a few Missel Thrushes show light against the dark pine-wood. Not far from this giant among the Culbins, Mr. Scott—Major Chadwick's gamekeeper—discovered the young of Pallas Sand Grouse (*see* vol. ii.). A single Herring Gull or a Lapwing occasionally passes over. Bird-life on the Culbins, indeed, is confined to the deeper hollows nearest the coast-line, and to the shingles above the tide-mark on the shore. On the great ridges no birds could succeed in rearing their young, owing to the furious sand-drift. But upon the Old Bar, innumerable Terns, Oyster-catchers, Ring Plovers, and a few Dunlins have their nests, as also along the half dried-up Loch of Buckie—part of the old course of Findhorn. Near the sea, bird-life is more abundant; while in the dense young pine-woods, in rabbit burrows, Sheldrakes are very abundant, and Stock Doves are also spreading towards the west.

What are these sandhills like in a westerly gale of wind without accompanying rain? Have you seen a vast concourse of sheep passing over an upland in the distance, till all their individuality is lost in one great white mass moving onward, like snow drifting before a gale? Or, have you seen a vast drift of powdery snow, in perpetual fleece-like rolls, coiling and flowing up hill, and curling down into the hollows, and not likened it to a great concourse of white sheep, the wind also raising waves of fleece upon their backs? Such is the appearance also of the Culbins; only, instead of the fleecy curling of the snow-drift, or the undulating ripples of white sheeps' backs, substitute the golden, gleaming, curling successions of the sand-drift, here and there, where sun and cloud cast shadows, deepening almost to the 'meerut' colour of the Shetland wool, or lengthening to the pale brown, or browny yellow, of the sheep's wool often obtained on the mainland of Scotland.

What are those curious, fairy-ring-like semi-circles in the loose sand, as if drawn by some one who had been measuring the sands of time with a pair of compasses, and had left his circles only half completed? For a second or two the novice hesitates, but the truth at once flashes across his eye, accustomed, it may be, to quickness of perception. These are the semi-circles made in the loose, fine sand by the tufted bent-grasses,[1] beaten down by the wind and *swished* to and fro—perhaps the wind of the day before. It has a remarkable appearance, but the same occurs amongst all sandhills where the sand is fine and powdery.[2]

THE OLD BAR OF THE FINDHORN AND THE ADJOINING COAST-LINE.

Situated about half-way between the present mouths of the Findhorn and Nairn is a long line of bent-covered sandhills; this represents the Old Bar of the Findhorn, and shows where once that river made its exit. It lies at least half a mile sea-wards from the line of heather and stunted firs that mark what was probably the old beach, judging from the stones and gravel that edge this line, the intervening flat being inundated at high tides. These flats are covered with grass, which, in the drier and higher portions, are grazed by cattle, and are also intersected by a canal, up which the water runs at every full tide, thus turning the Old Bar into an island; and as might be expected, they are lively with bird-life in the summer. In one part where there is a marshy piece of ground, the Redshank is extremely abundant and noisy; Skylarks keep constantly rising before one, Oyster-catchers sound their shrill notes of alarm, and Sheldrakes in every direction either fly round one, or are seen in the distance trying to hurry their young broods, which had been hatched in the neighbouring rabbit-holes, to the safer element of water.

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[1] Bent-grass, *Ammophila arundinacea*.

[2] The above is put concisely by Hugh Miller. He writes: 'There occurred on the surface of the sandhills, around decaying tufts of the bent-grass, deeply-marked circles, as if drawn by a pair of compasses or a trainer, the effects of eddy-winds whirling round, as on a pivot, the decayed plants.'

The best time to visit the Old Bar from Forres is when the tide is half or three-parts out, as one can then, by wading, cross the canal low down, strike the Bar at or under the east end, travel the whole length of the sandhill, and walk over the firm sands at the other end, which lie between Nairn and the west end of the Bar, and which will land one close to the town of Nairn.

The whole length of the Bar is about three miles. The greater part of it is composed of loose sand, covered with bent, but in the centre, where the salmon fishers have their huts, the ground is firmer, and covered with short, sweet grass. Facing the firth, the shore is entirely sand, but at either end, and for the greater part of its length on the landward side, the shores are stony. The breadth varies, but it is nowhere broader than 400 yards, and generally much less than that. The greatest amount of stones and shingle is at the west point, where it is collected in great banks, with hollows here and there. Here in the summer is a vast colony of Arctic Terns; nowhere else have we seen such a large one, though we have seen them more concentrated. Besides this large assemblage, Arctic Terns in smaller numbers are spread all over the Bar, along with Oyster-catchers, Ringed Plovers, Skylarks, and Meadow Pipits. The Dunlins we met with did not appear to be breeding —indeed, there is no suitable ground for them;[1] most of the gulls we saw were immature birds, and we found none breeding there. At the east end there is a very small colony of Lesser Terns, and during one season a number of pairs of Sandwich Terns took possession of the extreme point, but, so far as we know, none have bred there since.

The sandhills are of no great height, perhaps about 60 feet is their greatest elevation; there is a well of fairly good water at the fishermen's huts. St. John mentions meeting with a colony of field mice, but we saw nothing of them, and only the marks of Rabbits, which, however, did not appear to be particularly numerous.

A visit to the Old Bar on a fine, warm, sunshiny day at the beginning of June is a pleasant experience to a lover of nature. The view of the sandhills shining bright yellow against the dark blue, wind-ruffled waters of the firth is a pretty picture, and the sight and calls of the many birds that inhabit both it and the flats never allow any one to feel dull. Westward, the bright, firm sands form an easy road to the town of Nairn; across the firth the Cromarty cliffs form a good background; while to the east, if the mirage is not too strong, appear the sandhills which form the entrance to the Bay of Findhorn, so often mentioned in St. John's books.

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[1] We found, however, one nest of Dunlins with four eggs in 1893 (J. A. Harvie-Brown) to the west of the fishermen's houses.

Between the Culbin Sands and Nairn, and nearly adjoining and parallel with the shore, lies a very curious and interesting stripe of ground. It is utterly wild and uncultivated, covered, for the most part, with long heather and Scots firs of no great height; most of them are stunted, but some which are situated in hollows rise to the dignity of trees. At the Nairn end the ground is more open, the heather short and mixed with grass, and is the abode of many Rabbits; Stock Doves, too, frequent this part. Beyond this is Loch Loy, so often mentioned by St. John in connection with his wild-fowl shooting; and down this valley, which runs parallel with the shore, the ground is more or less marshy, and has many open spaces. It seemed to be quite a paradise for birds. In the long heather ducks were breeding, and a pair or two of Curlews on the bare tussocks; Common Gulls were numerous, and in the marshy, open spaces were numbers of Snipe, Redshanks, Dunlins, the drier grounds being occupied by Peewits and Oyster-catchers. Grey Crows were not absent—indeed, had we not seen the birds themselves, their presence would have been betrayed by the number of empty egg-shells, which had been destroyed by these inveterate nest-hunters.

These wet, open marshes, though at the time of our visit containing little or no water, must in the winter be converted into lochs, and be much frequented by wild-fowl, judging from the 'hides' put up in them for concealment of gunners. Nearer the Culbin Sands the ground becomes drier and more sandy, and is much broken up into hollows and steep hillocks covered with firs, whins, and some hard wood. At this point a Woodcock or two was seen.

XI. RIVER DEVERON.

The numerous sources of the river Deveron and its upper tributaries are situated amongst the hills and hollows of the great Carn District of Spey, which we shall have occasion to describe shortly. The river Deveron itself rises at an elevation of 1750 feet above the sea, and runs a course of about fifty-five to sixty miles in a general north-east direction, maintaining an average fall of about 30 feet per mile. The Allt Deveron—or infant stream—rises to the south-west of the Buck of Cabrach, and is joined by many tributaries before it leaves the great hollow of the Upper Cabrach Valley. Throughout nearly the whole of its course, it is fed by natural drainage only very slightly assisted by artificial drains—certainly not nearly to the same extent as many of our rivers both in the Highlands and Lowlands of Scotland. Its sources are springs, and there are no great reservoirs nor lakes as feeders. It pursues the even tenor of its way, down amongst fallow and lea, through a strictly pastoral and agricultural district for many miles of its upper courses.

Undulating hills surround and encompass it, grouse-moors above, birch slopes on the sides of the right bank, and agricultural land to the summits on the left. This continues long after it leaves the Upper Cabrach Valley, and may indeed be said to continue with but slight interruption down to Huntly. The scenery is varied, however, by considerable plantations and woods at and above Beldorney, where the river rushes through a romantic rocky gorge, famed for its salmon pools. Below Beldorney and at Braemore, fresh young woods have recently been planted, and large masses of natural birch clothe the steep slopes of the right bank below the top fringing of heather. Close to and above Huntly, and occupying the land between the river Deveron and its most important tributary on the left bank—the river Isla—is a huge wood, almost circular in form, and twenty-one miles in circumference, known as the Bin Wood, composed principally of forty-year-old larch on the heights, and pine and spruce in the hollows. The Bin Hill, which is the central peak, rises to a height of 1027 feet. It is on the property of the Duke of Richmond and Gordon, who, along with the Duke of Fife, owns—or owned—most of the property for miles along the river banks. The Bin-wood was planted in 1850, and since then has been always carefully forested, and yields an annual return of timber. It is also grazed by cattle, but not by sheep. The under cover, as in nearly all the woods of the district, old or young, consists of a long white grass, with here and there heather and mosses. Of game, it contains Pheasants, Blackgame, Roedeer, Hares, and Rabbits. Upon the opposite side of the river, and below Huntly, is the Crow Wood,—remnants of old pine-tree growth on the Huntly estate,—which holds a large rookery. The extensive woods opposite Rothiemay were cut down about forty years ago, and consisted of very fine old pine—say 1½ feet in diameter, clean and straight, without branches, till the tops were reached, which latter spread out and nearly met overhead. At the present day, larch, pine, and spruce hold the area, and already—at the age of forty years—are yielding a second paying crop; this is now being cut by the Duke of Fife. There are some magnificent specimens of silver fir close to the road, which follows the right bank of the river below Rothiemay; and elsewhere in the district. Extensive woods also crown the sides and summits of the lower hills behind Rothiemay and upon Rothiemay, Braco, and Grange, and reach up the sides of the Balloch Hills, near Keith, on the course of the Isla, and of the Knock Hill. An extensive wood occupies the flat moss land through which the branch railway runs to Banff from Grange Station.

To the natural lie of the land and natural drainage; to the fact of the river retaining a very uniform level for a long time even in dry weather; to the circumstance that cattle grazing and feeding is the principal care of the farming population, and that sheep-grazing is far from general—even the heathery hills near the sources, not affording rich feeding for sheep, owing to the thinness of the soil and short crisp nature of the heather which grows upon it—to these causes, and also to the industrious character of the farming population and dependants, few ever thinking of throwing a fly, or, until of late years, of 'trundling a worm,' the river Deveron owes in great degree its good character as a trout-stream, even in its open reaches. Only in the neighbourhood of Huntly can it be said to be heavily fished. The rivers Bogie, Isla, and other tributaries are much fished by the inhabitants of Keith and Huntly, and yield good baskets of yellow trout. But it is at the same time sad to learn that, without doubt, these streams are heavily poached and netted by Huntly and Dufftown poachers, even the free-fishing reaches above Huntly suffering from such scoundrelly devastations.

The valley of the Deveron is much contracted at most parts along its right bank from its source downwards till within about sixteen miles of the sea. Upon this right or eastern bank it receives the principal feeder—the Bogie—at Huntly, but continues to flow closer to the right watershed than to the left, though the watershed itself widens perceptibly. The sky-line of the eastern watershed then follows a somewhat sinuous and not very easily traceable line from Kennethmont and Winds Eye, through undulating agricultural uplands, past the Wells of Ythan, and the left bank of Idoch Water, which joins the river Deveron at Turriff.

In continuation of our description, the eastern watershed outruns at Cairnbulg Point, thus following the definition given in the map which accompanies the Twelfth Report (1885) of the Inspector of Salmon Fisheries of Scotland. This boundary line then turns round the head-waters of the Ugie with an easterly trend, and running parallel or nearly so with the coast, includes, in the Moray drainage system, the burn of Philorth or Rathen, and the whole coast east of Troup Head.

On the western side, the valley is somewhat wider throughout, including as it does the watersheds of the numerous burns of the Upper Cabrach, and of the Blackwater and the Treble Burn, which join at the Lower Cabrach; of the Markie, near Beldorney, in Middle Deveron; and lastly, of its largest tributary the Isla. After winding round by Drummuir and the head-waters of the Isla, to the west of Keith, the sky-line then makes off towards the Bin of Cullen, mounts its crest, and goes out at the Scarnose Point on the coast of the Moray Firth between Portknockie on the west and Cullen on the east.

We thus adopt a very natural drainage area between Deveron and Spey, and include an extensive coast-line, along with the minor valleys which bring down their streams from the Knock, viz., the burns of Boyndie and Boyne, Durn and Deskford; and, in accordance with this, we have traced the area on the map which accompanies this volume.

The whole estimated drainage area of the Deveron, as defined in the Map and Blue-Book attached to (or to accompany) the Third Report (1885) of the Inspector of Salmon Fisheries for Scotland, is given as 472 square miles for Isla, Bogie, and Deveron (*v.* Third Report, p. 173, and Map).[1]

The area of the Valley of Deveron may be said to be very nearly equally divided by the sinuous course of the old boundary of the counties of Banff and Aberdeen. The river itself runs mainly through Banffshire, but at many points intersects the political boundaries. In its upper reaches it rises and runs through Aberdeenshire, and again between Invermarkie Mill and Rothiemay. Thereafter its course is almost entirely through Banffshire. Its principal feeder on the right bank, and the minor streams of Forgue and Idoch, are almost entirely in Aberdeenshire.

The Deveron valley and watershed may therefore be said to form a north-eastern sub-district of the Moray faunal area.[2]

Now, as already said, the Allt Deveron, or *Infant Deveron*, rises at an elevation of 1750 feet on the slope of the Little Buck, and about 50 feet below its summit. After a course of several miles it flows out from the Upper Cabrach at the bridge at the old county march, still maintaining a level or altitude of 1000 feet above the sea. The Buck of Cabrach from this point is, therefore, still a dominant feature in the landscape, towering some 1060 feet above the valley, whilst the rim and its hills form quite a marked sky-line.[1]

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[1] Also see Twelfth Report (1894), where the map is not reproduced, but additional data are given.

[2] The Province of Moray is composed of three great parallel valleys: the Deveron on the east; the Spey, with the longest and largest drainage area, in the centre; and the Findhorn on the west; and numerous smaller valleys, the waters of which run directly to the Moray Firth, such as the Lossie and Nairn rivers.

Having thus described the general position of the Deveron and its drainage area, it will not be out of keeping to mention some of the more remarkable districts through which it flows.

UPPER CABRACH.[2]

The summit of the Buck of Cabrach (2368 feet) superintends the whole circular valley of the Upper Cabrach, and dominates the encircling hills of lesser elevation, which form a rim round the saucer-shaped hollow, and which are joined together by long, level-topped ridges or low cols.[3]

The whole contours are easily traced on the *Ordnance Survey Sheet*, No. 75. The principal peaks of this circle are Sandhill or the Little Buck (1799 feet), Threestone Hill (2065 feet), Carnbrallan (2029 feet), Rounumuck Hill, Round Hill, and Meikle Firebeggs or Firbriggs—these last three coming down to elevations of between 1700 and 1800 feet. The above are all on the south and west and north-west, and on the east there are also continuous ridges and hills, prominent amongst which are Leids Hill (1575 feet) and Mount of Bladdoch (1669 feet).[4]

Of the other hills surrounding the head-waters of the Deveron and its tributaries, the Hill of Noth, which culminates in the Tap o' Noth (1851 feet), is drained on both slopes by the Bogie and its tributary, the Kirkney Burn, which together join the Deveron at Huntly, after draining the district of Strathbogie. And round the western watershed of the Blackwater, besides the high Cook's Carn there is another circle of hills connected with ridges from Threestone Hill—already mentioned—to Crespet Hill, Round Hill, and Cairn-na-Bruar, all, except Crespet Hill, being over the 2000 feet elevation. The Blackwater rises at almost precisely the same height above the sea as does the parent stream.

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[1] All these political boundaries have been altered by the County Council since the above was written.

[2] The name Cabrach remains in evidence that the country now called by that name was at one time clothed in forest. This seems to be perfectly demonstrated by James Macdonald, F.S.A., in his admirable book on *Place-Names in Strathbogie* (Wyllie and Son, Aberdeen, 1891), and in that volume (p. 121 *et seq.*) nearly all the names we have occasion to mention in the following detailed descriptions of Deveron areas will be found ably explained. It is the popular belief that all this ancient wood was destroyed by fire, and, indeed, this is still in evidence by the charred roots of trees found in the central mosses of Upper Cabrach.

[3] Cook's Cairn is a higher hill (2478 feet), but, as it lies beyond the valley of the Blackwater, it can hardly be said to compete with the Buck in *dominating* the valley of the Deveron.

[4] The *Ordnance Survey* has it 'Mount of Haddoch.'

The circular valley itself is about four miles in diameter from east to west, from the base of Leids Hill to the Aldivalloch Farm, and about three miles from north to south, from the bridge to the base hills of the Buck. Upon the west side of the encircling range behind Threestone Hill and Carnbrallan, the Blackwater, the first large tributary river, rises, and running through a valley almost parallel with the sweep of hills, and the course of the parent stream, flows into the latter at the Lower Cabrach village, which at this point is 900 feet above the sea. The Blackwater flows past the forest lodge of Blackwater deer forest; and the whole valleys and encircling hills of Cabrach and Blackwater above the junction up to the sky-line of the Buck are on the property of the Duke of Richmond.

If a pedestrian started to walk the hills encircling Upper Cabrach at the county march, where the valley narrows, *via* the top of Meikle Firbriggs, and kept the ridge all the way round, *via* the Buck, Leids Hill, and Mount Bladdoch, and so down the right bank of the Deveron, an almost exact figure 9 would be traced by his footsteps—the round part being the Upper Cabrach Valley, and the tail being the continuations of the hills which, as will be seen, extend all the way down the right bank of the river till they are cut by the course of the Bogie near Huntly.

From the top of the Buck,—which we visited in July,—ascending from the shooting-lodge of Kildrummy in the valley of the river Don, the whole of this curiously-enclosed country lies like a picture beneath one's gaze—a sub-alpine (?) valley of about 1000 feet elevation.

The village of the Cabrach lies near the northern entrance to the valley, with manse, church, and schoolhouse; and the shooting-lodge is placed at the base of a central foot-hill of about 100 feet in height, from which a view can be obtained of all the upper valley from a lower elevation than that of the Buck. Several minor valleys open up to sight through the undulations of the lesser hills, which hold the several streams which unite with the Allt Deveron before its junction with the Blackwater, three-quarters of a mile below the bridge on the county march. All the lower hills, and the slopes of the rim itself to considerable heights—as at Gauch Farm, near which the curious mineral called mountain-leather is found in granite, and at Aldivalloch (famed in song)—are cultivated with oats, barley, potatoes, and turnips; and along the course of the Allt Deveron around the shooting-lodge one hill has been planted with pine. In the flatter portions of the circle there are still areas of unreclaimed peat-land and mosses, where, as already remarked, numerous remains of old forests are still found, which gave the original Gaelic name to the district.

Lower Cabrach or 'Strathdeveron.'

Crossing the bridge over the united streams of the head-waters, the last view of the Upper Valley is suddenly closed by an abrupt winding of the road, and sudden contraction of the river banks, and the river 'brattles' with trotting steps between birch-clad braes of a narrow glen. Above the right bank a range of heather, continuing the range of which, in the upper valley, Leids Hill, and Mount Bladdoch are a part, forms a portion of the famous grouse moors of the Duke of Richmond's property, and extends down the right side of the Deveron to near Beldorney, bending again still further on to near Huntly.

About a mile and a half down this narrow glen brings one to the Grouse Inn or 'Richmond Arms' of the Lower Cabrach, 950 feet above the sea. Here, as also in the Upper Cabrach, the air is pure, elastic, and invigorating, even in the midst of an unusually warm summer. Close below the Inn runs the lovely clear thread of the Deveron, between steeply rising hills clad in heather or cultivated slopes. A sense of retirement and seclusion accompanied by delightfully bracing air, yet in a fine agricultural and pastoral district, is almost the first impression made upon the senses, on arrival at the Grouse Inn if approaching it from lower down the valley. From the Inn door looking away down the widening valley—for it as suddenly opens out again below the junction of the Blackwater (900 ft.) as it closed below the exit of the upper valley—one can see some two and a half miles more of the river winding in alternate salmon pools, trouting reaches, and gravelly flats, between a lovely succession of wooded slopes and haugh-lands, birch clumps, farm-steadings, and in the distance the meal-mill and deep broad dam, and closer at hand are the U.P. church, manse, and schoolhouse; whilst a gamekeeper's house on the right bank of the Deveron is picturesquely situated at the base of the grouse moors in the midst of a clump of elm and alder trees.

Just above the Inn along the road we have already traversed, the glen as already stated becomes narrow only for a short distance. Birch-patches suggestive of Black Game are studded about the slopes, and above, are succeeded by whin-covered ground brilliant in bloom, and higher still the purple heather. A 'sough' of the soft wind, as it is slightly altered in direction, by the winding of the glen, strikes now and then upon the ear, lifting up with it the sleepy rippling murmurs of the rill, 100 feet below, which is seen glinting and sparkling through the interlacings of the fairy-like birches, that fringe the banks below the road.

Between the Inn of the Lower Cabrach and the village in the Upper Valley, a distance of three and three-quarter miles, there is not a single human habitation in this 'sleepy hollow.'

MIDDLE DEVERON.

The reaches of Deveron below the Cabrach and down to Beldorney still continue to present enticing 'streams of pure delight' to the angler, though narrowing again rapidly as Beldorney is approached. The road winds along the hill sides of the left bank and is seldom out of view of the river. The right bank is precipitous and heather-clad, but all the left is under cultivation to the tops of the low rounded hills.

The deep gorge at Beldorney through which the river now tears its way, is romantic and lovely in the extreme. The whole character of the stream is altered, for now there occurs for the space of a few hundred yards a rapid succession of dark, deep salmon pools, and intervening races of sparkling aerated streams. This is the cutting through another range of hills which forms as it were the gate of the Lower Cabrach; just as we have described the Upper Cabrach, which is entered by a narrow pass in like manner. Above the river on the left bank stands the old castle and mansion of Beldorney embowered in old wood; and where lovely winding paths lead up from the river's brink to the higher levels. Freed once again from its pent-up condition, the river flows away in more tranquil manner, through open haughlands, and by wooded bends, past the manse of Glass, and so on through the ever-widening valley to the base of Dunbennan hill. At this point it is bridged by a handsome span of three arches which carries the road which cuts across the peninsula formed by the rapid and bold curve the river makes below, round the northern base of Dunbennan hill. From the bridge down to Huntly the trouting water is thrown open to the public of Huntly by the Marquis of Huntly. How they repay this generosity can always be witnessed from the bridge at Huntly which crosses the river Bogie, where, in broad and open day, the inhabitants of Huntly, after a run of salmon, may be observed killing these fish by the score with leaded hooks, 'snatching' them from the pool below the unserviceable salmon-ladder placed on the face of the dam—utterly illegal fishing.

Below Huntly is a stretch of preserved water, and most of the river after this down to the sea is likewise preserved, except a small portion on one side below Rothiemay Station and above the junction with the Isla.

We are equally well acquainted with the Lower Deveron below Huntly, but do not consider that it is necessary to enter into such minute details as we have done regarding the higher reaches. We will only rapidly glance at the main features of interest. The Deveron runs below Huntly through the policies around Huntly Lodge and the old ruins of the ancient Huntly Castle, and is joined by the Bogie. It flows on under the handsome bridge of the Great North of Scotland Railway at Rothiemay Station, past the House of Avochie, and is then joined by the Isla, its largest tributary on the left bank. A long deep reach of the river above Rothiemay forms a dam to supply power to drive one of the oldest and quaintest meal-mills in Scotland, and below breaks into a succession of streams, affording the loveliest reaches of trouting water, passes through Rothiemay property, and so on through Corniehaugh and Mayen, and Garronhaugh to Marnoch Bridge, where it makes many curious doublings and eccentric curves, and, as is well known in the district, forms a trap for flotsam with marvellous certainty. Most of the wood-work of the old Rothiemay Bridge was washed away by a heavy flood during the course of construction, and was carted back again from the bends above Marnoch Bridge. The wooded banks of both sides stretch far up the bases of the hills, the principal in size of the latter being the Fourman's Hill opposite Rothiemay; and the generally wooded features continue all the remaining distance to Banff, past Netherdale and Turriff. At the Bridge of Alvah, within the policies of Duff Castle, the deepest pot or pool of the Deveron is formed by a high and narrow gorge through solid rock, —which is said to have been carried as far down beneath the surface of the water as the height of the rock is above the surface; a depth from the top of the rock to the bottom of the pot of 120 feet, giving the depth of water at 60 feet.—The formation of this pot in some degree resembles that formed in a similar way by the river Spey at the Pass of Sourdan. Below the Bridge of Alvah the river flows deep and sluggish beneath hanging woods which clothe both precipitous banks for the distance of about two miles until the Duke of Fife's salmon cruives are reached—forming a huge deep dam or 'stank'[1] looking black and gloomy but nevertheless a favourite haunt of many very tame wild-fowl which are never fired at here nor in any way molested. On the occasion of our visit to the policies of Duff House, and while following the winding path which runs along the river bank, often scarped out of the precipitous face above the stank, we could see the Wild Ducks, Teal Coots, Waterhens, and Little Grebes on the water below us by peeping through the interstices of the hanging wood. Released from the shelving rocks and cruive cuttings at the netting station, the river Deveron flows on somewhat more streamily through the park and haughs round Duff House and close to the town of Banff, passing under the bridge which bears the road between Banff and Macduff, and then finds itself during very dry seasons barred by an extensive and high bed of shingle, a feature so commonly observed at the mouths of all the principal rivers which flow into the Moray Firth from the south. The river below the bridge bends at right angles nearly with its former course and flows nearly due west, a distance of several hundred yards, and finally cuts a way through the channel to the sea close to the harbour of Banff. Formerly the Deveron cut its way straight towards the Macduff end of the Bar, and indeed it has been subject, and may again become subjected, to other alterations of a similar nature.[1]

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[1] '*Stank*,' local name in north-east of Scotland for a dead, long, still reach of river.

More shortly, and for purposes of convenience in referring to the distribution of the species, we propose to divide the Deveron valley into three main districts, viz.:—

Upper Deveron (U.D.), from its sources and watersheds down to Beldorney where the river changes its character for a space and runs through the narrow and picturesque gorge.

Middle Deveron (M.D.), from Beldorney down to the junction of the river Isla and the watersheds thereof.

Lower Deveron (L.D.), from the junction of river Isla below Avochie[2] to the sea at Banff.

For further convenience we may still subdivide Upper Deveron into two districts or sub-districts, of sufficiently distinct character, viz.:—Upper Cabrach (U.C.) and Lower Cabrach (L.C.), the upper circular valley divided from the lower narrower basin, at the bridge on the county march.

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[1] There appears to be good evidence that the Deveron joined the sea close to Macduff, *i.e.* at the east end of the present 'bar,' or raised bed of shingle, which stretches across the bay opposite the inner basin—(v. *Summer Excursions in the neighbourhood of Banff*, 1843 : Banff.——), Notes, p. 35.

[2] Avochie = Avōca = The meeting of the waters (?).

THE CARN DISTRICTS OF SPEY.

The Southern Carn Districts, or the Carn Districts of Spey, embrace a great mass of country which may be shortly defined as stretching east of the forest tracts of Spey and lying around the head-waters of the river Avon and its larger tributary streams such as Livet, Burn of Brown, and Conglass, and round Deveron and Blackwater, and the Bogie of the Deveron Watershed, and Fiddich of Spey. This Carn District stretches over our eastern and south-eastern watersheds and embraces the head-streams of Don (within the faunal area of 'Dee'), where the country to a large extent presents aspects similar to those we intend presently to describe, in so far as relates to our side of the watershed. Our Carn District extends west and east from the Cromdale Hills, eastward, through the Braes of Livet, Dullan, and Fiddich, including their watersheds; past the heights of Upper Deveron and Blackwater; still eastward to Bogie and its twin stream the Kirkney Burn, embracing the many Carns or lower hills, which present for the most part rounded sky-lines, rising to elevations of from 1800 to 2500 feet, and reaching over into Glen Bucket and Don. From north to south, it may be said to include the lands still partaking of these same rounded outlines and lesser elevations—foot-hills of the great ranges, from the basements of the mighty hill Ben Rinnes in the north, which lies close by the banks of Spey, and which overtops the other hills and reaches a height of 2750 feet—and reaches southwards to the 2500 feet levels around the head-waters of Conglass and the middle districts of Avon.

The principal features of this immense tract of pastoral country, exclusive of the more agricultural portions in the narrow glens are the uniformly rounded shapes of the hills—usually called Cárns—such as Cárn Mor, 2630 feet, and the hills already spoken of under our description of the Deveron Valley near its sources, in the Cabrach—all having been subjected to ice-action; also the lower connecting cols or long ridges between the Carns, and which separate the various water systems. Another marked feature is the curiously rounded disposition of the upper valleys, as described under Upper Cabrach Valley of Deveron, and instanced in the upper basin of the Livet, and, outside our area, of Glenbucket. Besides these characteristics there is the generally unwooded aspect of the hills; the deep valley of Avon, and the Deveron: the lesser glens, denes, and mountain rifts of the smaller streams traceable only by deeper shadows or by narrow threads of native rock-rooted birches which cling to their precipitous sides. The carns and cols are clad in heather, here and there scraggy and crisp, growing on stony shallow soil, but in some parts deep and luxuriant, and yielding famous grouse-ground. Near the higher summit levels are a few mossy tarns and marshy hollows, but no sheets of open water worthy of the name of lochs. But these tarns and hollows hold many pairs of Common Gulls—as for instance on the heights of Gruamach, where there are some thirty pairs; on the watershed between Glenlivet and Blackwater; on the watershed between Deveron and Bogie, and elsewhere among the Carns.

All through these hills and carns and among the steep sides of the glens are rugged stony faces and screes, seldom however breaking into actual precipices, and, save in one place, scarcely ever affording eyrie-hold for a Golden Eagle. Ben Rinnes is more than a Carn. It is a great mountain with tremendous base and jagged tops, and it 'once upon a time' held an eyrie of the king of birds. In one place only has the eagle, and that only of late years, attempted to establish a new eyrie; there, it is hoped, it will be well and carefully preserved. Only in one other part of our Moray basin is there another tract of country at all resembling this, and that we call the North Carn District which is grouped around the middle courses of the Findhorn around Tomatin and the watersheds of Nairn, Findhorn, and Dulnan, or the eastern foothills of the Monadhliath mountains. These districts are pre-eminently the home of the Ring Ouzel, which fact, to the naturalist's sense, may perhaps give a finer intuition than all our descriptive attempt. Below the great circular upper valleys the banks contract, the hills rise more abruptly and steeply to the carn level of, say, 1500 to 2000 feet. Such are Gruamach and

Craig Succoth and Carn Dornie of Deveron, or Carn Dregnie and the Convals of Fiddich. These rise on one side of the streams, but agricultural lands often fringe the opposite bank. Winding about among the haughs of the upper valleys are innumerable tributary streams, holding a wealth of fat, if small, trout, and mostly finding their origin in springs of purest limpid water among the green patches and fozy 'well-ees' of the hill-slopes, resembling in this respect many parts of our Scottish border country. These streams maintain a steady flow, even through continued drought, and when once in spate keep up their colour and body for a considerable length of time. This is owing to the natural drainage levels afforded by the hill-slopes, and differs from Border streams, in that they are not so suddenly flushed by artificial drains. The Carn District is also more of a cattle than a sheep district, and a large portion, viz. the Glen Fiddich and Blackwater Deer Forest is still in its original state of nature. It is essentially a high pastoral country, agriculture being confined to the haughs and valleys and lower hill-slopes, sheep, whilst not altogether absent, yet holding an inferior position numerically, to cattle and deer. The agriculture, however, where it has taken hold even amongst the higher-lying farms, is of a high standard of merit, though the soil is, as a rule, light and stony.

Among the higher carns and cols a few Ptarmigan breed annually where the thin, light soil has been scarped off the stony underlying ground in patches, showing stony screes or scalps, but though fairly distributed, these birds are by no means common nor so abundant as higher up in their true home at over 2500 feet elevation.

The Carn District has its own interest of bird and other life, but can scarcely be termed a paradise for the ornithologist, the great part of the fauna being really more truly characteristic of the deep sheltered glens and valleys, than of the bare scalped ridges. As elsewhere among the tributaries of Spey and other rivers of Moray, Oyster-catchers ascend far up the streams amongst these foothills, and even penetrate to the bases of the Cairngorms. Perhaps the following species may be considered to some extent characteristic, or at least as sure to attract attention. First the Ring Ouzel, then the Twite, Curlew, Redshank, Sandpiper, Common Gull, Dunlin (rare), Hooded and Carrion Crow (in the scaurs), and of late years a few pairs of Stock Doves at 1600 feet elevation. To these we may add Blackgame, Grouse and Ptarmigan, Merlin and Kestrel Hawk, and the Dipper on the streams. As plantations increase, however, such birds as Whitethroats, Spotted Flycatchers, and other woodland species may be expected to populate and increase their 'distribution.' Formerly, before gamekeepers had full sway, Hen Harriers were not unknown, but now they are extinct, and even the Peregrine is getting scarcer.

For the following notes upon the Geology and Trout of the Carn District, we are indebted to our friend, Mr. Lionel Hinxman of the Scottish Geological Survey.

Notes on the Geology of the 'Ladder' Hills, the Corryhabbie Range, etc.

The continuous range of hills that runs north-east from the eastern end of Ben Avon at Inchrory to the Cabrach, and whose watershed forms the march between the counties of Banff and Aberdeen, is mainly composed of alternating belts of hard yellowish quartzite and dark grey or black ferruginous slates and slaty schists. Bands of limestone also occur, one in particular running up Glen Suie and down Glen Fiddich to Dufftown, and there is also a considerable development of this rock in the deep glens cut by the head-waters of the Nochty on the eastern side of the range. Granite is found along the lower part of the Kymah Burn extending for some distance up the slopes of Cairn-na-Bruar; and, associated with Diorite, also forms a great part of the hills at the head of the Deveron. Serpentine occurs on Crespet Hill, at the Scores of the Blackwater, and at various other points along the course of that stream. The smooth rounded appearance of most of these hills is due, partly to the uniform nature and weathering of the rocks of which they are composed, partly to the thick covering of drift and peat which clothes their sides and sweeps out of the corries over the lower parts of the summit ridge. Where the higher tops are of quartzite, as on Geal Carn, Carn-a-Glascoill, and Carn-na-Bruar, there is a good deal of bare stony ground, and on the Eachrach and along the deep ravine of the Kymah a considerable amount of crag and stony scree. The slate hills, on the other hand, such as Carn Mor, Letterach, and Carn Liath, are smooth and heather-clad, and, with the exception of the extreme summit, generally covered with deep peat-mosses, the breeding-ground of the few pairs of Dunlin that frequent these hills.

The Corryhabbie range is almost entirely composed of quartzite, and, being comparatively bare of drift and peat, presents a much more rugged appearance than the hills described above, from which it is separated by Glen Suie and the deep gorge of the Fiddich.

Farther to the north rises the long ridge and sharp granite peak of Ben Rinnes, the highest and most conspicuous hill of the district, crowned with the weathered crags, known locally as *Scurrans* (Gaelic *Sgoran*), so characteristic of a granite mountain.

The smooth, heather-covered range of the Cromdales, on the west side of Strathavon, is again almost entirely composed of quartzite and quartz flagstones. The east side rises steeply from the valley, with a few rock scars and scree slopes on the brow of Carn Eachie and the summit of Carn-a-Chaise, the haunt of a pair or two of Ptarmigan and a favourite nesting-ground of the Golden Plover. The western slopes are thickly clothed with drift, and sweep gently down to the fertile haughs of Cromdale and the alluvial terraces of the Spey.

NOTES ON TROUT IN STREAMS FROM THE LADDER HILLS.

The number and quality of the trout in the streams that flow off the hills at the head of Glenlivet appear to depend chiefly upon the nature of the superficial covering—*i.e.* the drift—and not upon that of the rock of the country through which they flow.

Where the stream has a rapid fall, and runs through loose stony and gravelly drift, the channel shifts with every spate, and there are few pools and little food and shelter for the fish, which are consequently few and small. This is the case with the water of Livet above Tombae, while the Kymah, flowing over rock with frequent linns and pools, holds more and better fish. The Crombie, far the best trouting stream in Glenlivet, flows for the greater part of its course through a cultivated cattle-raising country (a boulder-clay country), with a permanent channel and plenty of deep water. The Conglass occupies an intermediate position between these two, and should be a better stream for trout than it is; but that it is not may perhaps be accounted for by the fact that it is a great salmon spawning stream, and consequently full of parr.

Glenlivet.

The scenery of Glenlivet is similar in nature to that of the Cabrach of Deveron, and scarcely requires separate treatment. Upper Glenlivet, or the Braes of Livet, is another of those saucer or cup-like hollows and corries almost peculiar to the Carn District of Spey. Besides Mr. Hinxman's short geological sketch of the Ladder Hills of Glenlivet, any one specially interested in this glen can find a considerable amount of information in a delightful little book, *Wanderings in the Highlands of Banff and Aberdeenshires*, by J. G. Phillips.[1]

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[1] Mr. J. Gordon Phillips was secretary of the Elgin and Moray Literary and Scientific Association, also Curator of the Elgin Museum after Mr. John Martin. He was also on the editorial staff of the *Elgin Courant*, and afterwards on those of the *Edinburgh Evening Dispatch* and *Edinburgh Evening News*, and at present is a serial writer on the staff of the *Dundee Courier*. Mr. Phillips has very considerably enriched the literature of his native county—Banffshire—and also that of Moray or Elgin, where he has long resided. He is also author of a number of papers on scientific subjects. We may mention one—'On the Age of the Elgin Sandstones,' read at British Association in Aberdeen in 1885.

XII. THE GREAT SPEY VALLEY AND ITS FORESTS.

The river Spey with its extensive valley and tributary streams may be said in a general way to be enclosed by the Grampian and Cairngorm mountains on the south, and by the Monadhliadth mountains on the north.

The recognised divisions of the valley are Upper and Lower Badenoch, Strathspey, and Speyside. Upper and Lower Badenoch are separated, or indicated, by the narrowing of the valley above Kingussie at Creag Dhubh. Lower Badenoch is the portion extending down from Creag Dhubh to Upper Craigellachie Rock near Kinrara and Aviemore, where the valley is again hemmed in by the advancing spurs of the mountains on the north and south. Strathspey is the name given to the wide portion of the valley which includes the great forest tracts, and reaches to the narrow pass of Lower Craigellachie, which is formed by the approaching spurs of Ben Rinnes on the south and the Rock of Craigellachie on the north. Speyside is the remaining portion between Lower Craigellachie and the sea.

SPEY VALLEY.

The glorious Spey rises far away to the westward among the mountains which form the backbone of Scotland, gathers its headwaters in the lonely Loch Spey, and thereafter is joined by innumerable mountain tributaries on both right and left banks. Loch Spey is only 1142 feet above the sea, and Spey runs a course of 120 miles, and drains an immense area of 1097 square miles.[1] As is natural to suppose, most of its tributaries rise at much higher elevations than that of the parent stream, pouring down from the Monadhliath mountains on the north or left bank, and from the great mountainous ranges of the Grampians on the south or right bank. None of these tributaries in Badenoch can perhaps rank as *rivers,* but can only be denominated mountain burns, until we come some few miles farther down the valley. The river Truim joins the Spey below Glen Truim House, and it rises on the level, or nearly level, moss at the watershed between Dalwhinnie and Drumouchter. True, a little stream, the Mashie Water, joins above Laggan, but its name indicates a position of importance only midway between a burn and a river.

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[1] Longmuir (*Speyside Guide*) says, 'not less than 1300 square miles.'

Some excellent remarks directly applicable to Upper Badenoch and the district surrounding the sources of Spey are given in a most interesting old book, *A Survey of the Province of Moray*, etc., Aberdeen, 1798.

Cf. Boleskine, p. 243; and again of the higher valley of Spey, the Corrieyairack Pass, *op. cit.* p. 252.

All the way down the Spey until we reach the farm of Shirramore—passing the site of the old barracks near Garbha Bridge—the river 'brattles' over a stony gravelly bed; but below Shirramore foams and 'warstles' through about half a mile of rocky salmon-pool and stream, and then again widens out and trots gently on for several miles to near Laggan Bridge. Thereafter it slides sleepily along through long dead reaches—beloved of pike—with deep heavy gliding streams between, holding large and lovely trout; through the haughs of Cluny, with many a serpentine twining, between deep-cut banks, or artificially staked buttresses, the adjacent meadows being protected from flooding by high-raised embankments. Often amongst these meadows one meets with deep stagnant pools, growing in rare luxuriance the many-jointed 'puddock-pipes' (*equisetum sp.*?) and other water plants. These are isolated pools, which once were parts of the older river-bed, but which by the shifting of the river itself, assisted by pick and shovel, have been in part reclaimed with the rich meadowland around. In the same way here and there you meet with the old river-bed, and ridges of water-worn pebbles.

The Truim—the first stream deserving of the title of river, which joins the Spey on the right or south bank—rises on the mossy land by the railway side beyond Dalwhinnie, and not far from the county march of Perth and Inverness; and its tributary runlets, rising near the base of An Torc or the Boar of Badenoch, drain also the most of the great hill of Markanich (Marcaonach, 3185 ft.), besides drawing supplies from many small burns, and in winter from snow torrents, which leave the great hills scarred and tattered with gaunt screes and gullies right and left of the railway line.

The Calder river is the first stream of consequence which joins the Spey on the north or left bank. It rises high up amongst the highest hills of the Western Monadhliath mountains and round the base of Cearn Dearg, and gathers its rills in the dark bosom of Loch Dubh. Its whole course partakes more of the character of a mountain stream with steeply rising banks, though at the same time aspiring in name to the dignity of a river. All the above area may be said to be included within the boundaries of Upper Badenoch.

Below Creag Dhubh and where Glen Truim joins the Spey, the great river widens out and assumes a nobler appearance, the valley also increasing in breadth and importance. From the junction of Truim downwards, lovely natural birch-woods clothe the river banks and knolls, and perhaps few places in Scotland can boast of such lovely birches as are to be seen about Kinrara and Aviemore, or near the mouth of the river Feshie. These birch-trees grow very straight, with white clean stems, the finest being those upon the gravelly ridges or alluvial deposits of the river-banks, whilst others struggle far up the sides of the rocky gorge at Creag Dhubh and crown the rugged steeps of Kinrara and the Rock of Upper Craigellachie. Around Kincraig also and about the shores of lovely Lochs Inch and Alvie, as well as at the other localities named, the birch are quite Norwegian in the appearance of their growth, not stunted and twisted and with rough corrugated bark as is too often the case in many parts of our Highland glens, but smooth and clean and silvery white.

The meadow-lands along the Spey in Lower Badenoch are still greatly subject to flooding, although much has been done by embanking and cutting to reduce the areas of flood-water. Many parts remain in a wet and marshy condition long after the floods subside, and here and there are deep holes scooped out in the light gravelly soil, of which nearly all the haughs are composed, which have from time to time imprisoned numerous large pike. The loch of Insh is a fine large sheet of water—

a widening of the river Spey—and offers a lovely item in the landscape if viewed from any elevation, especially from the top of Kinrara rocks or Craigellachie. Both here and upon Loch Alvie, near Llynwilg, Colonel Thornton used to exercise his skill, and kill the many marvellous pike he speaks of in his well-known 'Tour.'

Two considerable rivers besides the Truim, viz., the Tromie and the Feshie, join the Spey within the bounds of Lower Badenoch, both flowing from the recesses of the Grampians.

As we pass along the road near Llynwilg, opposite us rises the great Craig of Kinrara, which stands fairly out in the centre of the valley. Round the base of the Craig the river pursues its course, and is hemmed in by it, and by the spur of high hills which encompasses the far-famed Loch an Eilein, and separates Glen Feshie from Rothiemurchus, and Lower Badenoch from Strathspey: and as we approach Aviemore under the rock of Upper Craigellachie, the vast forest country opens out to our gaze; and, beyond, the giant mountains of the Cairngorm, make a magnificent setting to the dark green pine-forest at their feet.

The Spey pursues its course, ever increasing in volume and rapidity through the great meadows which fringe the pine woods, past 'fairm-toons' and crofts, round birch-clad knolls, and by the bases of pine-grown hills, through the great division of the valley known as Strathspey. Back now for miles, on either bank stretch the vast forests of pine, reaching to the very bases of the mountains of the Cairngorm range, through Rothiemurchus and Glenmore and Abernethy, near the sources of the tributary streams which flow from Lochs Eunach and Morlich—woodland sheets of water embosomed amongst their sombre recesses, which will frequently find mention in these pages—and still farther to near the head-waters of the river Nethy, which flows through the great Abernethy forest. On the left bank are visible the newly planted areas upon the Countess of Seafield's property which stretch over into the Strath of Dulnan, and again join the ancient pine-woods of Duthil above Carrbridge. Lower down yet, the lovely reaches of the now great river sweep round projecting knolls and the pine-clad slopes of Castle Grant and Gran-

A PIKE POOL IN STRATH SPEY

town. Beyond, upon the right bank, the woods are encircled by the concave sweep of the Cromdale Hills, the valley again narrowing all the way down past Aberlour, although the river has yet further increased in size and rapidity of current, having received the considerable waters of the Dulnan above Grantown, and the clear crystal waters of the Avon at Ballindalloch. All along these grand reaches of the valley are patches of land clear of timber —growing bright luxuriant broom, with sheep-pastures between —all at one time, not so very remote, shrouded in dense and sombre pine, as still is the case in the true forest tracts. The railway embankment too is clothed in rich garb in summer, until it is hard to say whether broom or birch, bracken or gowan, sweetbrier and dog-rose, or self-sown larches, succeed best in the struggle for supremacy. All of these growing upon the light gravelly soil which composes the whole alluvium and river-banks, vie with one another in clothing these old river-terraces in the richest and most luxurious garb.

As we have said, the rivers Feshie, Dulnan, Nethy, and Avon are the principal tributaries of Spey which join their forces with the parent stream within the boundaries of the middle district of Strathspey, *i.e.* between Upper and Lower Craigellachie.

Of the lowest division of Spey—viz. so-called Speyside—we next come to speak. Speyside lies between Lower Craigellachie and the sea. At Craigellachie the road-bridge spans one of the deepest pools of Spey, and near it the railway, which runs through Glen Rothes, is carried over by a handsome iron bridge. The river has now developed more intense energy, breadth, depth, and impetuosity, and bears on a vast, rapid body of water, having added to its volume the waters of the Fiddich, which rise far up among the hills of the Glen Fiddich Deer Forest, in the great Carn Districts, which lie between Ben Rinnes and the eastern spurs of the Cairngorms. With many a noble curve, and with almost resistless force, the Spey rushes onward through the plain of Rothes, sweeping round the bases of Ben Aigan and the cliffy shores of reddened quartzite about a mile below. Then, pent up by the abrupt bend formed at the great Pass of Sourdan, which is rent out or cut through the hills which would otherwise join across its bed, the glorious river plays and frets upon the surface of, perhaps, the deepest pool throughout its long course, and then, again released, widens still further, and increases still more in velocity, scarping away its shifting banks, altering its channel, heaping up the gravel and sand and debris, often defying human ingenuity and skill to restrain it, and forming a mighty delta of ever changing islands. Then, still maintaining its accelerated speed, though resolutely stayed for a short space by the great Bar, with renewed madness and suicidal plunge dashes headlong into the sea at Kingston.

Quite a feature of Lower Speyside is the annually shifting delta of stones, and gravel and sand. We had crossed it by the railway bridge upon the coast-line between Banff and Elgin, but not until 1893 did we have an opportunity of personally and intimately becoming acquainted with it. In the early days of August of that year we resided for a time at Fochabers, fishing, by the kind permission of the Duke of Richmond and Gordon's factors, for 'finnock' and sea-trout, and in the course of our time we visited the delta between the railway bridge and the sea, or rather the inner basin formed by the Bar. There is not much to say about the delta, save that it is entirely composed of gravel and sand, forming islands, which, along with the banks of the river, are partially clothed in low scrub of alder and willow, and at that season were haunted by innumerable Sedge Warblers, Whitethroats, and Willow Warblers, as also by Rose Linnets, Yellow-hammers, and Greenfinches. Oyster-catchers were vociferous overhead, flying to and fro, and Sand-martins also were very abundant. The latter breed in large and numerous colonies in the surface drift which overlies the old red sandstone cliffs, which are such prominent features in the river-side scenery of Speyside below Craigellachie and Rothes, throughout some sixteen miles of its course. We saw the salmon fishermen make heavy hauls of fine salmon, where the river reunites its straggling branches at the junction with the basin behind the Bar, some individual fish weighing up to 30 lbs., 35 lbs., 45 lbs., and so on. We could not help the sickening sensation which we always feel when we see the noble fish tapped on the head, while they still struggled vainly in the cod of the seine. We saw a glance of sympathy in the face of one of the men: had he been alone we would have drowned our grief together in the contents of our flask, but seven strong fishermen would have made small play, if we had produced it in public, so we kept it dark.

We cannot pass on without, in some slight measure, referring to the extraordinary floods to which all the rivers north of the Grampians have been subjected, especially those of 1829. But we cannot afford space for more than the passing remark, as the whole subject has been so eminently well done, in what may be termed the classic work by Sir Thomas Dick Lauder.[1]

THE FORESTS, TREATED IN THEIR RELATIONSHIP TO THE STILL VASTER PINE-WOODS OF SCOTLAND.

The following article does not in the least claim to exhaust so vast a subject, nor are we aware that any real attempt has ever been made to do so. A complete history, step by step, chronologically arranged, with all the historical and natural side-lights thrown upon every successive stage, could not fail to prove of absorbing interest to many readers. The materials for such *are at hand*, or not far to search for, should any one be disposed to go thoroughly into the subject.

It is not necessary in this place to go into full proof of the wide extent of pine- and oak-woods which at one time covered great portions of Scotland, because much has already been recorded in numerous previous volumes. Suffice it to say, as regards Scotland generally, that even at the present day evidence can be found of pine and oak forests in almost all the old peat-mosses; and beyond the present limits of the dry land, submerged remains of forest growth still appear within view in many parts of Scotland, as, for instance, in the shallow water between Findhorn and Burghead. Evidence of these woods is still in existence, high up on the slopes of our mountains, here and there, notably in Argyll and Moray; as for instance on Ben Cruachan, and high up on the haunches of Ben Muichdhui, Cairngorm, and Glen Guisach; reaching far up Glen Derry of Dee, and Tromie, and Feshie of Moray. Evidence remains even in living giant pines, which are still numerous in the sheltered valleys of Moray, some measuring sixteen feet in girth five feet from the ground. Such are 'Porter's Pine' in Abernethy, and 'The Queen of the Forest' also in Abernethy, and a pine by the roadside, of the same name as the last, in the old Crannach Wood of Duthil; and many more besides. The old wood still occupies literally thousands of acres along Speyside, Dulnan, and Findhorn. There are fewer of these remains now at Guisachan and Glen Affric, in Inverness-shire, but at this latter locality, it is believed, are the largest existing specimens of individual trees in Scotland, some of which are still in vigorous old age.[1]

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[1] And we may add that we had many of the extraordinary pranks which the river Spey had played amongst these islands of its delta during that historic period pointed out to us.

Of the gradual decrease at times, and the rapid destruction at others, of the greater part of these extensive forest-tracts, the history is well known—though no perfect chronological account of it has been drawn up—from the decay and formation of our vast peat-mosses, visible in its later stages in still hard roots and trunks. In historic times, as we are informed in Menteith's *Forester's Guide*:—

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[1] By the kindness of the late Lord Tweedmouth we had the great pleasure of inspecting a handsome folio volume of drawings, by Kilgour and Mr. Wilson, of Guisachan, Glen Affric, and the old pines of the forest there. We give the measurements of two taken from Lord Tweedmouth's notes:

The 'Mammoth,' blown down in February 1889, measured—
Girth at 1 foot from the ground 19 feet.
,, 3 feet ,, ,, 17 feet 4 inches.
,, 6 ,, ,, 22 feet.
It stood near Plodda on the banks of Garvagh.
'Magog'—Girth at ground 16 feet.
3 feet from the ground 14 feet 9 inches.
6 ,, ,, 14 feet 7 inches.
9 ,, ,, 15 feet 3 inches.
12 ,, ,, 16 feet 8 inches.
15 ,, ,, 17 feet.
Cubic contents of the 15 feet = 210 feet 11 inches.

We have seen also in this collection drawings of 'The Burnt Firs,' near Garvagh Bridge, in a limb of which are the borings of Woodpeckers; and the 'Ospreys' Fir,' with the nest on the top. The larger and finer specimens of pine-trees are found on the south side of the strath.

'Through the whole extent, for upwards of nineteen miles, from beyond Tyndrum to Tyanne on the King's House, through the upper or eastern portion of the Glenorchy division, decayed roots of trees, many of them of large size, appear on each side of the road, in the lower parts of the mountain sides, and in the intervening corries and narrow dells; and on the banks of the rivers also, patches of natural fir, and other trees may be seen, affording the strongest indications that the tract was formerly covered with a forest of wood. Indications of similar forests can hardly be questioned, as spreading over all the valleys, hills, moors, and mosses of Scotland, although, in many places, these marks are not so distinctly visible as in this quarter, where the decay of a considerable part of the forest has been but recent, and where some of it still exists.

'Much of these extensive forests was cut down from various views, chiefly to prevent their affording shelter and rallying points to those who maintained the independence of the nation during the efforts that, in different ages, were made to subdue the country; as also a great part perished by natural decay; the pasturing of sheep and cattle on the ground where they stood, and want of enclosure, effectually prevented their reproduction in the highland parts of the country. A ship of immense size having been constructed at Syracuse, by the celebrated Archimedes, two hundred years before the Christian era, a proper main-mast could nowhere be found for this ship but in the mountains of Britain. The Emperor Severus employed, in the year 207, legions of auxiliary troops and natives in cutting down the forests of Scotland, in which undertaking he is said to have lost 50,000 men, probably from the pestilential effect of the swamps, as well as the opposition of the Scots. At a much later period, 24,000 axes were employed by John, Duke of Lancaster, for the purpose. Besides, large woods in the north were cut down and burned by the Danes; some forests near Inveraray were destroyed by King Robert Bruce in an expedition against Cummin; and the following order by General Monk, to cut down certain woods about Aberfoyle, is yet extant:— "Whereas the woods of Milton and Glenshort, in Aberfoyle parish, are great shelters to the rebels and mossers, and do thereby bring many inconveniences to the country thereabouts; these are to desire you, on sight heireof, to give order for the cutting down of the woods with all possible expedition, that so they may not any longer be a harbour or shelter for loose, idle, and desperate persons; and heireof you are not to fayle. Given under my hand and seall, at Cardrosse, the 17th May

1654, (signed) George Monk. To the Right Honourable the Earl of Earth (Airth)." ' [*The Forester's Guide*, by Robert Menteith, p. xlvii.]

On Speyside and elsewhere, ruthless destruction went on by the York Building Company's operations, until the failure of that undertaking put a stop to it.[1] Besides these causes, fire, accidental or premeditated, undoubtedly had its share, as there is abundance of evidence to show.[2]

At Guisachan and Strath Affric we have the direct testimony of one Rory Macdonald, an old smuggler, who was alive in 1880, but is since deceased, that when smuggling was so largely carried on prior to 1840 or 1850, the smugglers made free use of all the decayed and bored trees, at which the proprietors winked, provided they left the sound trees alone.[3] In the first volume of the first series of the *Prize Essays and Transactions of the Highland Society,* 1799, p. 185, it is mentioned that, at that date, remains of the old forests were 'not unfrequent in the upper parts of Argyllshire, and also in the North Highlands, as at Braemar and the head of the river Dee.' But on Deeside 80,000 trees are stated to have been swept down, in the neighbourhood of the Linns of Dee (*The Braemar Highlands,* p. 15, by

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[1] By far the best account in detail of the proceedings of the York Company, we believe, will be found in *The York Building Company: a Chapter in Scotch History*, by David Murray, M.A., F.S.A. Scot. (Glasgow: James Maclehose and Sons, 1883); and a most excellent general account has lately appeared in the Transactions of the Gaelic Society of Inverness, by Mr. David Nairn, entitled, *Notes on Highland Woods, Ancient and Modern*, vol. xvii. 1890-91, pp. 170-221, which, however, is not exhaustive in details. Trees of much larger girth are instanced in this article, which latter is well worthy of perusal by any one specially interested in the subject.

[2] Mr. P. C. Mackenzie, Solicitor, Forres, possesses all the papers, accounts, etc., of the 'York Building Company,' which relate to Aviemore. Mr. Mackenzie kindly offered to look these up for our inspection, but to date of our going to press, we have not procured a sight of them.

[3] This proves *one cause*—by fire alone,—just at a time when the disappearance of the Great Spotted Woodpecker is said to have taken place (see under that species). The said Rory Macdonald gave evidence also that these birds were common previous to 1851. Many great fires, which are specified in Mr. David Nairn's article before referred to, must have hastened the disappearance of this species.

Elizabeth Taylor, Edinburgh, 1873). The Stuarts make mention, in their *Lays of the Deer Forest* (*vide* p. 221), of vast stretches of forest growth of firs and oaks in Lochaber and Glen Treig, and in Strathfarrar, 'where twelve miles of pine, birch, and oak were burned to *improve* the sheep pasture,'—and in Tarnaway of 'aboriginal pines, . . . oaks, . . . and hollies, . . . which latter were not exceeded, perhaps not equalled in Great Britain' (*loc. cit.* p. 257). But we must pass on to more recent times. Even at the less remote date of 1864, shortly after the present line of the 'Highland Railway' was opened, a large extent of the central plain of the Rothiemurchus Forest underwent complete denudation of its timber-growth, leaving to this day the black and charred stumps of many goodly pines. These were cut to supply demand, and the ground has since been burned, to prepare it, it is hoped, for replanting. Some of the other large areas have been more mercifully, and we think more wisely treated, annual income being secured by annual thinning out; thus at the same time preserving the wooded appearance and beauty of the landscape, and providing for the future crop by native seed, shed by the remaining trees. Such a system is followed throughout the whole area still occupied by the old pine-forest on the extensive Strathspey estates of the Countess of Seafield, through Glenmore belonging to the Duke of Richmond and Gordon, and the old wood of the Crannach at Carr Bridge, not to speak of other areas on the Findhorn, and others again north of the line of the Great Glen.

Of the re-afforesting by younger growth, the history is also fully known, if not fully told, and is within easy reach of all who are specially interested; it may be said to have commenced on Strathspey towards the end of the last and the beginning of the present century, the example having been shown by the Duke of Athole in the valley of the Garry, and followed by the proprietors upon Strathspey shortly afterwards. At the present time the whole valley and minor hill-slopes of Spey may be said to have become re-habilitated in a mantle of pine-wood of various ages. On the Countess of Seafield's properties alone over 40,000,000 of trees have been planted quite in recent years; while, at the same time, many thousands of acres of the older growths have been scientifically conserved, and are now engaged as of old, in self-regeneration, and there seems little fear at the present day, that any repetition of the old wastefulness of our forests will be permitted.[1]

If we continue the older accounts of this destruction to the forests of Scotland, and trace them down, we find that the evidence of former growth, death, or denudation from various causes are very apparent at the present day. Large areas for instance of eighty-year-old pine have been cut along the Strath at many parts of Spey, such as at Boat of Garten. At the old woods of Crannach on the Dulnan, quantities of old pine were consumed by fire not more than two or three years ago, when the heather was being burned, and, in 1892, a large area of young pine upon the estates of Sir John Ramsden, and near Belleville, was similarly destroyed. Far up among the glens natural old age and decay, fire, or reckless and indiscriminate use of the axe, and utter want of conservation, have left their unmistakable traces behind. People still living can remember Highlanders from Nethy bringing hampers full of live-pine splints on pony-back across the Ladder Hills of Livet to sell at the large markets of Huntly and even Aberdeen; and others still earlier, can remember a man going one day from Suidh in Glenlivet in order to cut and square a baulk of timber in Abernethy, and returning next day with it at the heels of his Highland pony, perhaps to 'big his wee housie wi',' the day after. This practice was common to all the people in the glen, and the old path, by which these logs were brought out of the forest into the Carn District, is still known as 'the Timmer Road,' and is still looked upon as a right of way. All the Carn District, at least all the low level moors and the mosses on the foothills of Glenlivet, Deveron, and elsewhere, contain innumerable stocks of pine; and large trunks are often revealed whilst the people are cutting their peats. Long ago the people of the glens, who were more numerous then than now, pursued the 'good old-fashioned plan' of helping themselves freely to the timber as they now do to the peat. There were also many smuggling bothies hidden away among the pine-woods, or far up among the head-waters of the Kymah and Ladder Burns of Livet, all of which drew their supplies of wood from Abernethy forests. This dates back from within the present century, down to comparatively recent times.[1]

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[1] Mr. David Nairn, already quoted, tells us, in his most interesting account of the *Highland Woods*, that in Inverness-shire itself, there are 163,000 acres of woods, and on the Seafield property the greatest planting experiment on record is to be found—some 50,000 acres. The county contains 60,000 acres more of wood than any other county in Scotland. A useful table in Mr. Nairn's article shows the comparative acreages of Scotland in the four years, 1812, 1872, 1881, and 1888, and the proportions of wood in the nine most importantly wooded counties of Scotland.

We can instance other items of interest which may serve to illustrate the subject. About 1847, the Carr Bridge district on the Dulnan was splendidly wooded with grand old Scots fir, but has since been ravished by saw-mills, and—one good feature—replaced by new plantations by the Countess of Seafield. At the date of 1891, the area of young and old pines on the Strathspey estates was about 50,000 acres.

We find that the great forests were continuous from Kingussie (Gael. *caen-guisthach* = the head of the pine-woods) down through almost the whole valley of the Spey to Aberlour and Lower Craigellachie. In other words, the whole area of Strathspey (so called) was one vast stretch of pine-forest. Beyond the confines of the valley, between these points, pines stretched up the now bare sides of Ben Aiagan, and the Convals, and over into the valley of the Deveron, even to its sources among the hills of the Carn Districts, and extended far eastward over 'blars' and mosses of the lower reaches of Deveron, and over the next watershed again into Dee. In width the forest tract occupied the whole Spey valley and the valleys of its tributary streams, from Tromie and Feshie in Lower Badenoch, Druie, Dorbock, Nethy, and Dulnan down to the bright Avon at Ballindalloch. Over the watersheds of Spey the old forests stretched into the Findhorn valley, and even to the shores of Loch Ness, filling, in fact, the whole vast trough which may be said to be bounded on the south by the stony tops of the Cairngorms, and on the north interrupted only by the similar tops of the Monadhliath. Old forgotten sentinels of the vast army of the pines may still be seen standing out in dark and bold relief against the sky along the ridges of the outlying spurs of these mountains. Even the ramparts of the great Grampians were not proof against the vast host at one time, for the Larig Ghruamach, the far upper ballochs across the ridges, Glen Guisthach by the Wells of Dee, and the ravines of the great Cairngorms show indisputable evidence of the *march past* of the pine-woods.

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[1] For upwards of sixty years a revenue was taken off the Abernethy forest tracts before the York Building Company's lease began. Vide *A Survey of the Province of Moray*, 1798, p. 269.

There can be no reasonable doubt, and present evidences prove that the great old Caledonian Forest reached far beyond the Great Glen and Loch Ness into Ross-shire, Sutherland, and West Inverness-shire, spreading its ramifications far over the passes, and even over the 'cols' of the backbone of Scotland, down the western slopes towards the Atlantic, joined hands with the Blackwood of Rannoch, struggled across the dividing ranges of Dee and Forfarshire, and penetrated eastward beyond the Deveron into Buchan and North-East Aberdeenshire.[1] As viewed at the present day—say from the pass over the dividing ridge between Dulnan and Spey, or from the round hill behind Boat of Garten, or from the Gates of Badenoch and Upper Craigellachie — some idea can be formed of what the wooded area once was before the ruthless work of fire and saw and axe wrought their havoc.

Long ago the panoply of pine was almost unbroken. Pine held undisputed sway, save where groves of birch and riverside alders stood by the streams. At the present day, however, the dark uniformity at many points is broken and relieved by the lighter-foliaged larches, scattered as kindly nurses amongst the newly-planted pines.

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[1] Or, to put it more concisely, again quoting Mr. Nairn's article: 'Upper Strathspey would, in remote times, form the centre of the great Caledonian Forest, which is said to have extended from Glenlyon and Rannoch to Strathspey and Strathglass, and from Glencoe eastward to the Braes of Mar' (*loc. cit.* p. 192.)

Looking up the deep gorge of the Sluggan of Kincardine, that cuts through the spur of the Cairngorms which reaches out its long arm, and separating the great widenings of the Spey valley known as Glenmore and Abernethy, the view startlingly reminds us of a deep Norwegian pine-clad glen, the far-off yet towering snow-ranges of the giant Cairngorms, still further suggesting the high fjelds of Norway. This effect, as seen by us, was heightened by a fresh fall of snow which took place on the 18th May—the 'gowk-storm' of 1892.

The high dividing ridge referred to above extends from the bases of Cairngorm above Glenmore shooting-lodge—where it is cut again by the Sluggan of Abernethy—down to the loch of Phitiulais, close to the Spey. The range is called by the inhabitants generally the Newton[1] Hills, and it reaches an altitude of about 2500 feet, or the same elevation as the carns of the Carn District.

We believe we here discovered a Gaelic name used principally upon the west or Glenmore side which appeared certainly to be markedly descriptive, as most Gaelic names of places are. Spelling it to the best of our ability, it reads thus, Drhuim na chroisk, and the meaning is 'the ridge of the crosses,' admirably descriptive of the two deep 'sluggans,' or rifts, which cut it at right angles.

It requires no great stretch of imagination to summon up an idea of the many changes that have taken place in the fauna of this country, from the time when the Wolf and the Wild Boar roamed almost undisturbed to the time of the death of the last wolves not so very many years back, before the beginning of the present century. We can also, in imagination, go back still further to the time when the wild white cattle stalked through the dense woods, when the Moray Firth had not encroached so far upon the land, nor submerged the old forests and peat-mosses which are still visible in the shallow water of Burghead and Findhorn Bays. Even of later years, as the process of destruction advanced, changes in our fauna are constantly taking place, and are being brought under notice. Looking at the history of the old denudation of the forests and the disappearance of certain forms of life, and again at the resuscitation of the pine-woods by a superior and wiser policy, corresponding changes in faunal life become constantly and increasingly emphatic to our senses, and cannot be ignored.

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[1] Pronounced *Nettin.*

Besides the pine-woods of Strathspey, there is much very old birch, especially around Loch Morlich and under the Cairngorms, much of it dead and dying—rare nesting-ground for Crested Tits and Redstarts. By the margin of the lakes in some places very ancient alders dot the meadows, or are seen far up the river Nethy and other streams. Both birch and alder are usually knotted and gnarled and twisted, and the former is mixed amongst the oldest growths of pine. The healthier, clean-barked stems of tall, straight birches along the opener straths and haughs of Spey and Feshie we have already incidentally mentioned as most noticeable around Aviemore and Kinrara and all along the haughs of Spey, and on both sides of the railway. Old larch, *i.e.* perhaps one hundred years old, cap many of the gravelly knolls and ridges, and great blank spaces occur where they have been already cut down for timber. Very old larch occurs here and there, both on Spey and in the tributary valleys.

The forests of Darnaway are mostly of younger generations than the great pines around Loch Morlich, and evince the great care and excellent forestry bestowed upon them by the late Lord Moray, under the able superintendence of his factor, Mr. Brown, and his predecessors. These woods, along with those of Altyre, Culmoney, Glenferness, Brodie, etc., clothe the lower valley of the Findhorn. They consist of far more varied timber growths, the hard woods being numerous—beech, ash, elm, oak, and birch, marvellously beautiful in their varied foliage and tracery against the sky, lovely in their cleanness of bark, and fine straight growth of limb and trunk—the perfection of exquisite forestry and care.

Of a general view of Glenmore and Rothiemurchus to the south, say, from the dividing ridge between Aviemore and the Sluggan or pass of Kincardine, the path towards the top of Cairngorm is seen following a V-shaped bank Λ and then winds up past a prominent and large stone on the sky-line. Cairngorm shows three great and principal corries: 'The Dry Corrie of the Arm Chair,' Coire an t'Sneachh-da or Snow Corrie, where snow lies far into the summer, and Coire an Lochain, the great precipices circling the two latter.

From this same vantage point, and away to the right when facing Cairngorm, lies the wild glen of Loch and River Eunach—'a large plain of pines' (*i.e.* Rothiemurchus) *Rath-mór-a guisthach*—between and in the middle distance.

XIII. THE CAIRNGORMS.

The praises of the grand and savage scenery of the Cairngorm range and its recesses have repeatedly been sung, and still are being sung, and, no doubt, will be sung for ever. Such writers as John Hill Burton sang them in his *The Cairngorm Mountains*, descending the great corries of Loch Avon, 'like a fragment of the Alps imported and set down in Scotland,' and its feeding streamlet trickling from the melting snow wreaths; describing the 'long wall or precipice of Braeriach, and the pass of Cairngorm where the wells of Dee spring downwards to the Dee; and the upper waters of the tributaries of Spey nearly join hands across the ridge at the head of the Larig Pass; or referring to the Shelter Stone of Glen Avon, or

> 'The grizzly rocks that guard
> The infant rills of Highland Dee,
> Where hunter's horn was never heard,
> Nor bugle of the forest bee.
>
> 'Mid wastes that dern and dreary lie,
> One mountain rears its mighty form,
> Disturbs the moon in passing by,
> And smiles above the thunder storm.'
>
> *James Hogg.*

Of later years we have some most useful little books written by

Mr. Alexander Inkson M'Connochie, chief amongst which, for our present area, is *Ben Muich Dhui and his Neighbours: a Guide to the Cairngorm Mountains* (1885), which contains an excellent map of the district—with Ben Muich Dhui as a centre—the base and sides of which he 'estimated to cover an area of about 140 square miles,' within the three counties of Aberdeen, Banff, and Inverness. For a description of the panorama, as seen from the summits, we recommend a perusal of Mr. M'Connochie's valuable *Guide*, and amongst other bits of descriptive brilliancy we find him at one with Hill Burton in describing 'the Corrie of the Garrachorry (as) the wildest and the grandest, not only among the Cairngorms, but also in Scotland,' and 'the view of the steep, almost perpendicular, natural wall of Braeriach and of Cairntoul, with Lochan Uaine and the Garrachorry streams in long white streaks, (as) one that will leave an impression on the beholder that will not soon be effaced.'

No wonder these glorious mountains tempt the footsteps of our Alpine climbers, for does not this area contain the highest continuous mountain-range of all Scotland; contain also the highest fresh-water springs[1] and fresh-water lochs in Britain; contain, likewise, the highest inhabited village,—fast rising, of late years, to the importance of a town and tourist-resort,—viz., Tomintoul on the Avon? No wonder the members of the Cairngorm Club are fired to emulation with such a guide as Mr. Inkson M'Connochie; and the time is not far distant when every little creek and eerie corner of these everlasting hills will yield up their secrets to such as he and they. Already the portable camera is fast laying before us new things every year, of which the photograph of Corrie nan Lochan, of which we give a reproduction, is an example.[2]

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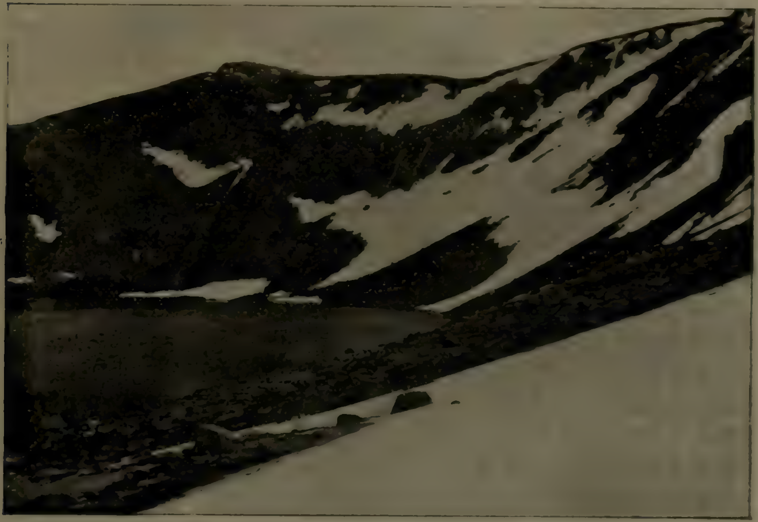
[1] MacGillivray describes his ascent of Braeriach, and although principally referring to the 'Dee' Basin, it is still deserving of perusal as connected with Spey and Moray. (*Natural History of Deeside and Braemar*, 1885.)

[2] Loch Coire an Lochan (3254 feet), on the western side of Braeriach, and others, such as Lochan Suarach (2840 feet), whence the river Geusachan flows, or to go farther up to the very source of the loch's feeder, an altitude of 3500 feet, as well as many other springs and feeders far up above Loch Avon on the sides of 'Ben Muich Dhui and his neighbours.' Lochan nan Cnapan, above Loch

THE CAIRNGORMS FROM THE NORTH

Of our own achievements among these great mountains we have little—nay, almost nothing—to say. We are indeed as the dumb; not that the spirit was not willing, but, alas! the flesh was weak, and in the days when we were better able to climb, our footsteps, our knowledge, and our inclinations led us into other 'waste-places' of great Scotland. On one occasion, many years ago, we attempted on two successive days to ascend Ben Muich Dhui from Glen Derry (Dee), but both times were turned by dense mists. We went for a specific purpose—to search for the nest of the Snow Bunting; on such days as these were, one might as lief



LOCH COIRE AN LOCHAN. 24th June 1892.

Eunach (nearly 3000 feet) draining into Spey, by the bed of the river Druie, and Lochan Bhuidhe, which drains into Spey by the river Avon.

Mr. Alexander Inkson M'Connochie, the energetic secretary of the Cairngorm Club, found bright red berries—the bear-berry—during a visit paid to Mam Suim, Cairngorm, on 29th February 1893, showing the same preservative process which in Arctic regions preserves the cranberries and other ground-fruits under the warm snow.

search for a pin in a 'bottle o' hay,' so we turned on the ridge above Glen Derry on both occasions, after waiting wearily for the mists to lift or roll away.

XIV. THE RIVER FINDHORN AND ITS CARN DISTRICT.

Above Findhorn Bridge at Tomatin the valley is very wide, yet the watershed is not far distant, and the river Findhorn has a comparatively narrow basin. For many miles up on either side—between Findhorn and Spey on the south or right bank, and between Findhorn and the river Nairn on the north or left bank—an altitude is reached by the dividing hills of about 2000 to 2300 feet—these swelling, rounded, glaciated hills forming just such another Carn district as we have before attempted to describe. Our highest point upon the Inverness road between Findhorn and Nairn is near the small lochans on the moor above Moy Hall, an elevation of 1600 feet. As already remarked, the hills are all rounded off by glacial action as far up as one can see, and no prominent features characterise their somewhat monotonous contours. Here and there a peaty hag or scaur shows, or a clump of birch or younger pine, and there are a few neat, villa-like cottages and more substantial farm-towns upon the cultivated slopes and amongst the lower birch-woods. The wide haugh is rich in crop-lands and Highland cattle. Short, sharp windings of the peat roads ascend the hollows over the hills, and the main road to Carr Bridge and Aviemore by the valley of the Dulnan—a tributary of Spey—is visible for several miles of its course, after crossing the Findhorn by Findhorn Bridge at Tomatin. The river itself is wide, with many gravel shores and banks, lined here and there with old birch-woods. The air is bracing and pure and healthful—the opposite of the enervating climate of the lower and more shut-in valleys. The rapidity of the great floods of this river renders it at times dangerous to the casual fisherman or the thoughtless loiterer by its banks, coming down with little or no warning in a wall of water three or four feet high. Slight warning, as we say, is given; perhaps a few floating straws or little bits of drift-wood—because the river makes far too clean a sweep in flood-time to leave much behind as warning for the future. The channel is for ever shifting, causing great expense in restoration of embankments and protective work, as is self-evident. Every day during this July month (1891) the soundless stillness, as of endless weeks of Sabbaths, was over the valley, far removed as it is from the hum of crowded humanity. In July even all bird-voices are hushed, except when a Redshank or an Oyster-catcher starts up from the river banks, and, for some reasons of its own, begins to gabble. Some days not even a trout is seen to move. After a time this soundlessness—at first peaceful and soothing—became almost oppressive. The scenery, though lovely, grew monotonous and somewhat tame. Indeed it was a sleepy and rather thundery week we spent at Tomatin; disorderly masses of blue-black cloud and rack ranged up around the sky-lines, and silence reigned supreme. The Cushat and almost all other bird-voices were hushed, save only when the Willow-Wren by half-hearted song emphasised the stillness of the birch-woods, or a migratory or vagratory band of Titmice was kept together by the feeble *tweet* of its leaders among the pines, or, as we have said, the Redshank or Oyster-catcher suddenly cried along the river-side or upon the lower hill-slopes, often rising high in the air, as if exercising the young in flight, or spying out their course for their rapidly approaching migration.

Of the forests of Darnaway and Cawdor, few better accounts can be found than those given by Dr. Robert Carruthers in his *Highland Note-book*, and in numerous articles in *The Scottish Arboricultural Society's Proceedings*, in later years. Many particulars are therein detailed of the various ages of the different portions of the forests, and of the general forestry operations and management, even to the details of the numbers of each kind of tree—oak, larch, Scots fir, and spruce planted, and particulars of other less abundant kinds, such as horse-chestnuts, walnuts, ash, elm, and beech, all under 'the able auspices of Mr. Stables the factor.'

Findhorn.

Many good accounts of the beauties of the river Findhorn are given. *The Lays of the Deer Forest,* Sir Thos. Dick Lauder's *Moray Floods,* and his *Rivers of Scotland,* Knox's *Autumns on the Spey,* and St. John, besides innumerable Guide-books—*e.g. A Guide to Forres,* 1887—local and general, are all worthy of attention by any one intending to visit the scenery around Forres, or who may already have visited the district. An excellent description also of Lower Findhorn will be read with pleasure and information in *A Manual of the Antiquities of Moray,* Second Edition, Elgin, 1823, p. 77 *et seq.* Why should we attempt to clothe in other verbiage descriptions which have been already written so well? It appears to us it would be unprofitable to our readers, who it is presumed are acquainted with the beauties of these authors. One thing seems sure, and that is, as St. John says, the river Findhorn 'is the most picturesque river in Great Britain.'

XV. THE NAIRN RIVER.

Of the Nairn river, we can sing but few of its praises, as it is the valley least known to us. We have crossed it far up by the road which leads south from Inverness to Aviemore, and which district, amongst the carns of the foothills of the Monadhliath, will shortly be made accessible by the new railway which was opened as far as Carr Bridge on the Dulnan in May 1892. From a geological paper,[1] by Mr. Thos. D. Wallace, F.S.A. Scot., head-master of the Inverness High School, we, meanwhile, have culled the following notes, which have a bearing upon our subject: 'The area included in the district over which the following personal observations have been made is about 130 square miles. It includes the whole of the country drained by the river Nairn and its tributaries, and is bounded on the south-east by the range of hills which separates the Nairn from the Findhorn, or Strathnairn from Strathdearn. On the north it is bounded by the low range of hummocky hills which separates the Nairn from the Ness and the Moray Firth, and which varies in height . . . (up to) 1514 feet on Tom Bailgeann.

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[1] 'Structural Geology of Strathnairn' (with a Map). Read February 27, 1879.

'The southern boundary may be considered the cross ridge of hills above Dunmaglass, and the watershed going round the east end of Loch Ruthven, and extending westward again through Dalcrombie and Dunchea to Bochruben, the extreme point of the north branch of the Nairn.

'The Nairn rises in the Monadhliath Hills at a height of 2637 feet above the sea-level. . . . It flows in a north-east direction through the parishes of Daviot and Dunlichity (united), Croy, Cawdor, and Nairn, and empties its waters into the Moray Firth at the town of Nairn, after a course of thirty miles. Most of its tributaries are mere streamlets, but of great geological interest.' . . . Here Mr. Wallace enumerates all the numerous burns and streamlets on both banks of the river by name—he refers to the geology afterwards—and continues: 'Should he' (the lover of Highland scenery) 'desire to have a comprehensive view of the whole surrounding upper district, he may climb to some of the higher points, and have his desire gratified to the full.' Mr. Wallace recommends a 'high rock between Lochs Ceiglais, Duntelchaig, and Ruthven, known as Dunchea rock, which is 1500 feet above sea-level. From this point seven or eight lochs may be counted, and the whole country viewed as in a panorama. . . . In the middle parts of the strath, he may gratify his finer tastes, with green banks of birch and hazel, carpeted in early spring with primroses and many species of fern and wildflower. The lower part flows through manor woods and cultivated fields, which end with the sands on the shore at Nairn.' The highest summit of this part of the North Carn District appears to be Meal Mor, 1627 feet. In the upper and middle parts of its course, the Nairn flows through some excellent grouse moors, and in its lower reaches gives an added beauty to the well-wooded policies of Cantray, Holme, and Kilravock.

Were it not for the nets at Nairn, the river would be good for salmon, and even as it is, if the autumn be wet, after the close-time for the nets, many fish are caught; even in spring a few manage to make their way up. In hard or stormy weather many ducks find shelter, and with snow and a strong easterly gale, crowds of Teal and other wild-fowl rest in the backwaters and springs along its course.

Besides the large and well-cultivated farms that line the lower parts of the Nairn, there are likewise large tracts of well-grown timber, amongst which larch seems to do well. Around the manor-houses some of the hard-wood is exceptionally fine, as for instance the ash-tree about the old castle of Cawdor.

Of the Nairn valley and county of Nairn we are told, one-fifth of the area is under cultivation. The county contains 215 square miles (or 137,000 acres), giving 27,070 acres or thereby under cultivation, but the valley of the Findhorn also drains a considerable part of the county. The river Nairn is thirty-six miles long.

FAUNAL POSITION

In writing an account of this extensive Faunal area, we believe accentuation ought to be given to its position as compared with those of other areas already treated of. If that most interesting and valuable contribution to our knowledge of migration—we mean Mr. H. Gätke's *Heligoland as an Ornithological Observatory*—be studied, under species for species, with this account, and the opening chapters of the said text-book be at the same time consulted and compared, we cannot but believe that some interesting facts will appear to the intelligent reader. We purpose, therefore, to dwell at some length upon what we consider a not unimportant portion of this volume as indicated in the title of this chapter.

That the deep trough of the Moray Firth, which goes down to depths of 80 and 110 fathoms, near the entrance of the Firth, at a distance of some four to six miles north of Kinnaird Head, influences the distribution and migration of the Fish-fauna of the north-east coasts of Scotland there can be scarcely any doubt, as witness the occurrence of *Lumpenus lampetriformis*, and of the general molluscan and other life found there, or on 'The Witch-ground,' as it is called by the fishermen, on account of the abundance of 'The Witch Sole,' or Pole, or Craig Fluke (*Pleuronectes cynoglossus*). This deep trough stretches from the entrance of the Moray Firth, almost parallel with the coast, nearly to Tarbet Ness, a distance of not less than sixty miles.

Whether the migrations and consequent distribution of birds have been in the past, or are now, being influenced thereby—if we consider the theories set forth by Herr Weismann—is perhaps less certain. However that may be, we hold that there certainly can be scarcely any doubt remaining, that the great corresponding trough of the Great Glen, through which our merchant vessels pass by the Caledonian Canal, and of which, the above-mentioned

'Witch-ground' appears to be a most probable continuation, is at the present time, and has been for ages, a vast highway of bird-migrants, and that it has, in no small degree, regulated the distribution of many of our breeding species.

The Great Glen is indeed a vast depressed surface—a funnel, as it were, of which the coasts to the north of its neck at, say, Tarbet Ness, or to still further narrow the entrance, say, at Cromarty Ness and the Sutors, and as far as Duncansbay Head on the north, and Cairnbulg Head or Kinnaird's Head on the south, form the lips or receivers. In other words, when the entrance of the river Ness is reached, a cul-de-sac is formed catching the compressed flocks of migrants and leading them onwards.

The accompanying diagram upon our map may assist in illustrating the above and following remarks, upon the faunal position and importance of our area.

As will be easily realised, great physical changes have taken place upon the coast-lines of Moray. At one time, not so very far back in the history of Moray, a long double promontory or hammer-head-shaped extent of land occupied the southern shore-line of the Firth, stretching from Lossiemouth in the east, to a little to the west of Burghead, and again beyond the mouth of the present Findhorn river was another isolated or semi-isolated bank, or peninsula, which continued as a barrier to the encroachments of the sea for many miles to the west, and is now only represented by the remaining portion of The Old Bar of Findhorn. These islands, or peninsular projections parallel with the inner coast-line, were formed by the combined actions of the sea and of the rivers and fresh-water areas of the Lossie, Loch Spynie—once an arm of the sea itself, Loch Rosyle (Roseisle, as shown upon Timothy Pont's map, dating 1654), and the Findhorn, and Nairn, and possibly the Ness rivers.

At a still more remote period, it would appear that a still mightier river flowed through what is now the Moray Firth. The deep trench known to local fishermen as the 'Truik'—with certain portions named after the fish which frequent their isolated shoals, such as the 'Witch Bank' already mentioned—extends all the way from Nairn to Fraserburgh, varying somewhat in depths, bottomed with mud in the midst of an universal top-dressing of sand shoaling on either side—about half a mile wide, and with precipitous submerged banks—a famous resort of many excellent sea-fish, such as skate and ling and flounders, or 'Witches.' On either side of these precipitous banks the floor of the Firth of Moray is of pure sand, except in certain parts, such as Burghead Bay, under the shallow waters of which, the roots and boles of ancient pines are still to be seen in a well-preserved state, rooted in muddy, peaty soil of great tenacity, and overlaid by a thin stratum of granitic sand, the same as that of which the Culbin Hills and general coast-lines are formed. It would be easy for us to enlarge upon this descriptive part of our subject, but we are only traversing well-beaten ground, and compiling or repeating what has been far more ably and far more fully told before, so we must refer our readers to these fuller accounts, and especially to an admirably compressed account of the ancient and present-day state of the coast of Moray in the *Elgin Courant* of November 1855, as well as to the more finished and detailed works of the Moray Historians already often referred to. Perhaps more than enough has here been said for our purpose under 'Faunal Position' of our area.

Of the Great Bird-wave[1] which undoubtedly enters the Moray Firth, and which can only be rivalled or exceeded in Scotland by those which strike our coasts in the Firth of Forth, and at the Pentland Skerries, many detachments escape from the pressure, *via* the valleys which open up on the south shore of the Firth—

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[1] When speaking thus of bird-waves being influenced by land-contours, our readers will understand us to mean the lower travelling strata of migrants. It has been explained by Herr Heinrich Gätke, that birds on migration pass over Heligoland at varying and often vast altitudes, and such as do pass over at these great heights, are not affected by the comparatively shallow depressions or raised ridges and mountains of our country; but often, far beyond our power of vision, speed on their way without wanting to rest or feed *en route*, and, it may be, desiring to complete their long aërial journey between their summer and winter quarters, in one long-sustained flight, often of hundreds and even thousands of miles (see Gätke's *Birds of Heligoland*, English translation: David Douglas, Edinburgh, 1895). But it appears to us that it is to the lower travelling strata, in autumn and spring that we are mainly indebted for extension of range and increase of many of our breeding birds in Britain. These are naturally more easily intercepted by favourable localities, where they may be induced to rest and feed *en route*.

such as Deveron, Spey, and Findhorn. But upon the north shore there are fewer avenues of escape; and the nature of the coasts north of Tarbet Ness, or the coasts of Caithness and part of Sutherland is less tempting to migrants.

RAPTORIAL BIRDS, which on migration appear first to strike the Caithness coast between Dunbeath and Ousdale and the Ord (*vide* our volume on *The Fauna of Sutherland and Caithness*), do not appear to penetrate very far inland, but to linger in a certain favourite hollow amongst the hills of the Ord for a time, as if for rest and refreshment, and then to pass down the coast-line of Sutherland, between the shore and the high hills of the Dunrobin Deer Forest, occasionally straggling inland, however, along the dividing range between Sutherland and Caithness, or occurring amongst the wilder portions of the highlands of East Sutherland. Of these we may instance: The Rough-legged Buzzard, the Honey Buzzard, Goshawk, and Snowy Owl. The high land of the Ord no doubt attracts their attention from long distances out at sea, and regulates their course afterwards towards the south.

LAND-BIRDS which come to us from easterly directions, if they strike the east coast of Aberdeenshire outside the entrance to the Moray Firth, only gain access, *i.e.* in normal conditions of winds favourable to their passage, at certain low-lying portions of the coast—such as the mouths of Dee and Don, the links of Newburgh, at the embouchure of the river Ythan, or the sandy links and Loch of Strathbeg in the north of the county. They do not, by choice, care to face the forbidding rocky and precipitous shores which abut upon the North Sea, throughout the remaining portions of the north-east coast-line.

A large body of the migrants, after reaching off Kinnaird Head —probably the larger portion—no doubt follows the coast-line of the south shore of the Firth, until the high-cliffy coasts of Pennan, Troup, and Gamrie are passed; nor does it appear that any large detachments escape by any lateral valleys until the river Deveron is reached. But the first great inducement to the wearied migrants appears, when—scarcely raised above sea-level, and certainly at an altitude more upon the same plane as that of the birds' flight—the Laigh of Moray and the wide embouchure of the noble river Spey open their wide arms to receive them, whilst the main stream still pours on by the sides of the *cul-de-sac* and is distributed over our whole area.[1]

WADING BIRDS again reach the Moray Firth from north-easterly, for the most part, but a few from northerly or north-westerly directions, turning the corner at Duncansbay Head, and then hugging the shelter of the Caithness coast. Of course, all birds, besides following their habitual bi-annual routes, are often led aside by tempting patches of land, which come within range of their vision, and which present the most suitable conditions of rest and of food-supplies. Thus, however contracted the streams of migrants may be at certain points along their channel, many inducements present themselves—right and left of it—for divergence, of which there are many individuals willing at all times to avail themselves.

The migration lines of WATERFOWL—Swans, Geese, Ducks, etc.—are not dependent upon land-communications, at all events not to the same extent as are other birds. Their general strength of wing, and their ability to repose upon the surface of water, make them so. Consequently their flights are almost at right angles to those of all other birds. Even in the case of the lighter, more buoyant, and perhaps less powerful of the web-footed birds, such as Gulls, a more north-to-south trend in their flight is observable. They follow the ocean routes with ease, whereas our LAND BIRDS, WADING BIRDS, and our RAPTORS, which prey upon these, and upon other life on land—whose conditions of life, in fact, require land-communications,—labour sore across the waste of waters, and only feel secure when land lies beneath them.

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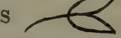
[1] An American author has lately spoken of these divergencies, and even of minor ones in search of feeding, as 'lines of flight,' in contradistinction to 'Fly-lines.' Another American author has treated of the general subject of 'The Lines of least and greatest Resistance,' in a very philosophical, if theoretical, paper; and, as far as distribution of colouring matter upon bird's feathers is considered, has ably illustrated his subject in wording and in drawing. The same law, we hold, naturally applies to the courses of bird-migration in the Moray Firth. (Vide *Occasional Papers of the Californian Academy of Sciences*: III. 'Evolution of the Colours of North American Land Birds,' by Charles A. Keeler, San Francisco, January 1893, p. 159 *et seqq.*)—a most instructive Essay. (See also under 'Redstart,' vol. ii. of this work.)

In a continent like America, where land lies in vast bulk from north to south, and where great oceans separate it from other lands, and where but few islands fringe its shores, both land and water birds fly north to south, because the conditions are equally suitable to each.

We have spoken of the autumn migration, and the possible influence upon it of the peculiar conformity of the shores of the Firth. If we now turn to the more inland localities we find the same natural conditions continued in a very marked degree, and we hope to make this plainer by the diagrams which follow. We have seen that the Moray Firth and the Great Glen form, as it were, an enormous letter -< lying in a horizontal position, the leg being the Great Glen, and the arms the north and south shores of the Firth. Then, if over the V-shaped portion of the -< and a part of the leg, we place a U thus , the new lines so drawn may be held to represent the watershed of the drainage system of the Moray Basin.

It becomes a creed of the systematic worker in distribution and migration always very carefully to make note of the elevations of the watersheds and sources of the streams, and to fully realise the influences brought to bear upon migration-lines, by, on the one side, high cliffy coasts and narrow rocky or landlocked sea-entrances, and, on the other, by low sandy coasts and skerries, sand- and mud-flats, and wide open highways for free migrations.

Migration, we hold, from many observations made, takes place *inside* the Moray Firth and spreads in a widening fan inland, in battalions up the great lateral glens of Deveron, Spey, and Findhorn; or, to carry it further, up and down the greatest depression of all, the Great Glen between Inverness and Fort-William, and so on to the troughs and sea-lochs of Loch Linnhe and Loch Suinart and the western isles; and of these latter, especially Tiree and Islay.

Flights of migrating birds do not 'come in' to the same extent over the cliff-heads of Aberdeenshire; and the great body of migrants passes on until the sheltering headland of Troup is reached before they seriously deflect their course. The north-east promontory of Scotland to the east of Troup Head does not present great attractions to insectivorous birds, nor tempt them to tarry, to the same extent as the well-wooded areas to the west of the watershed, so that even in the isolated cosy corners, such as the woods of Haddo House, and the deep and romantic glen of the Braes of Gight on the Ythan, a distinct difference in bird-population is appreciable both in species and in numbers. We believe, when the whole faunas of our great watersheds are more fully worked out than they can claim to be at present, that the richest faunas will always be found along the lines of the deepest, and at the same time widest, depressions, and across the lowest watersheds. The faunal area of Moray, or drainage area of the Moray Firth, contains the whole drainage systems of the principal rivers—Deveron, Spey—and all its tributaries—Lossie, Nairn, and Findhorn, the easterly drainage of the river Ness and its contributory waters, including the Great Glen itself, and northwards, the valleys of the Beauly and Conon. The area contains also the whole vast mass of the Monadhliath mountains, which, with the parallel range of the Cairngorms and extension to the west of the Grampian range, forms the wide trough or valley of the Spey, which wild group, occupying a central position between Spey and the Great Caledonian Glen, gives birth to innumerable rivers and burns, chief amongst which are the Calder Water and the Dulnan—tributaries of Spey—and the Findhorn and the Nairn, besides many minor streams which run north into Loch Ness, such as the Burns of Foyers and Tarff.

Thus it will be seen that a very compact, if large, natural faunal area has been taken into consideration—the landward portion hemmed in by some of the highest mountains of Scotland, and the seaward area similarly enclosed by the funnel-shaped contours of the shores.

We believe, when we come to treat of the fauna under species, that this will be found to be fully borne out by the occurrence of certain species within the area, either as *peculiar* to it, or as more abundantly represented by individuals, or as occurring even only on migrations in numbers greater than those met with in other areas of Scotland. The trough of the Great Glen, and the minor, but still powerful, 'conductor' of that of Spey, appears to us distinctly to form a high-road by which many species reach our west coasts, and turn up in what, at one time, appeared a most unexpected way, as we have instanced under our remarks on the island of Tiree in a previous volume.[1]

Thus the 'slinks'[2] and wide estuaries of the Cromarty and Beauly Firths, and the Bay of Findhorn, the sweeps of sandy shore between Nairn and Burghead, and the still famous loch of Spynie, all afford suitable resting- and feeding-grounds for many species in autumn. So do the bosky dells and warm sun-lit valleys of the tributaries of the Spey, where, whilst 'pursuing the angle' for the spotted trout, we find the whole glens seemingly alive with twittering myriads of woodland species. So also do the great old pine woods of Strathspey and Tarnaway and Inverness-shire still continue to hold a comparatively rich variety of our rarer raptorial birds and pine-loving woodland species. So, likewise, when the water-fowl which haunt our estuaries, and are the delight of our wild-fowlers, arrive after an ocean journey, they find creeks, and lakes, and rivers, and ponds, right and left of their lines of flight, admirably suited to their requirements. It is, perhaps, only when they are extending their breeding haunts and area, owing to quiet and preservation and encouragement, that evidence occurs of their being influenced by land-contours. Their progression as a race is at that time usually from south to north. Thus we find the increase and spread of the colonisation of many species tending to occupy the great eastern drainage areas of our country—amongst which we may instance the Tufted Duck, Shoveller, and Pochard. It is only after congestion at the centres that they seek to diverge to the westward of their old lines of autumn and spring migration, and 'overflow,' as it were, through the passes which occur through the backbone of Scotland.[3]

In conclusion, it appears evident that intimate connection occurs between certain areas of occupation upon the shores of our present area and certain localities on our west coast—such as the island of Tiree—which lie at the west or south-west extremity of the great main trough of the Great Caledonian Glen. Evidence of this extension, we think, can be made patent to those of our readers who care minutely to follow the history of extension of range—whether of breeding species or of merely migratory ones—both as regards woodland species, Waders, Raptors, or certain species of water-fowl. There are others, no doubt, such as the Grey Phalarope, and species of more western and north-western distribution, to which these remarks are *not* applicable—conditions, or alterations in conditions—which we trust it is not necessary to insist upon with those who appreciate the general direction of our argument.[1]

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[1] *Fauna of Argyll*, etc., 1892.

[2] Local name in parts of Scotland for mud-flats or muddy foreshore.

[3] The outline of the Ross-shire mountains by Colin Phillip, illustrating his article upon the sky-line of our western boundary, taken from a point commanding a view of the whole Great Glen, will admirably illustrate our meaning of the 'overflow' towards the west, 'through the passes of the backbone of Scotland,' or, in other words, the 'lines of least and greatest resistance.'

There are fluctuations also, dependent upon meteorological conditions, which may, and do, cause extraordinary departures from the common law—what, indeed, may be looked upon as causing abnormal occurrences of species far out of their usual tracks.

A sketch of the 'Witch-ground' occurs in an article by Mr. George Sim on '*Lumpenus lampetriformis* on the Coast of Scotland' (*Journal of the Linnæan Society*, vol. xx., 'Zoology,' No. 116, p. 43 *q.v.*).

We may here add, as bearing on what we have just mentioned, that local observers during a long series of years have noticed that there has been a considerable change among the birds of their district since they were schoolboys. 'Some sorts,' writes Mr. Mackessack, 'which were fairly common then have almost disappeared, while others, which were then unknown, or at least very rare, have now become fairly common.'

This experience of Mr. Mackessack is shared by most, if not all, of our observers who have been long resident in one district, and we mention it thus pointedly, as its bearing upon migration and extension of range is pertinent to our argument.

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[1] It appears to us to be somewhat significant that so many of our rarer species bred in Strathspey and within our present area much more commonly *prior* to 1851. This, we know, is the case with the Woodpecker, the Black-throated Diver at Lochindorb, and such species of our Raptors as the Osprey, Kite, Hen Harrier, and others which now have disappeared or become much scarcer, and of such thoroughly isolated species as the Crested Tit, Honey Buzzard, etc.

THE VERTEBRATE FAUNA OF THE MORAY BASIN.

Class 1. MAMMALIA.

Sub-class *MONODELPHIA.*

Order **CHIROPTERA.**

Sub-order *MICROCHIROPTERA.*

Family **VESPERTILIONIDÆ.**

Vesperugo pipistrellus (*Schreb.*). Pipistrelle.

Common, and widely distributed in all suitable localities from Sutherland to the Ness. We have seen them at Guisachan and Invergarry, as well as in the still better wooded and more fertile districts along the coast.

Captain Dunbar Brander of Pitgaveny informs us that, whereas formerly Bats were quite abundant, they have now 'all but disappeared' about the districts around Elgin. He says:—'Now, one may be seen in a week, where formerly one could probably find a dozen,' and he accounts for the difference in their numbers by the disappearance of suitable shelter, by the substitution of slated roofs for the old stone-flagged roofs.

It may still, however, be considered of pretty general distribution, and it was found to be so by Mr. Wm. Evans in Strathspey, and specimens have been sent to Mr. Eagle-Clarke from North Elgin and Banff.[1]

Mr. R. Thomson[2] gives some interesting field-notes regarding the species—too long, however, for insertion here,—but we quote one passage, viz.:—'It usually produces one or two young ones at a birth, and hybernates during the winter.'

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[1] Mr. Eagle-Clarke has had it from Speymouth from Rev. Dr. Gordon.

[2] Mr. R. Thomson, Schoolhouse, Ferness, a very able local naturalist, who, under the early and kind tuition of Dr. George Gordon, has for many years devoted his leisure time to a study of geology, botany, and zoology of his native parish of Ardclach.

Vespertilio daubentonii, *Leisl.* Daubenton's Bat.

Edward includes this species in his list, and very likely was correct in doing so, but up to date of Dr. Gordon's *Fauna of Moray* there was no other record of it within the Moray basin, though Dr. Gordon seemed fully to realise its discovery in the near future (vide *Fauna of Moray*, 1889 edition, p. 13), owing to its occurrence recorded from the neighbouring area of 'Dee.'

The first satisfactory record for Banffshire, and indeed for our full area of 'Moray,' was at last supplied by Mr. Wm. Evans, who captured a fine male at Cromdale Church, Strathspey, under circumstances related by him in *The Scottish Naturalist* for 1891, p. 190. This was shortly afterwards followed by another record by our good friend Mr. Eagle-Clarke, who has been giving special attention to the micro-mammalia and their Scottish distribution. He writes:—'I have just received a Daubenton's Bat from the extreme north-east of Banff, at the mouth of the Spey, the most northerly record for Britain.' Mr. Eagle-Clarke further informed us that the specimen was a female, and that it had been captured by the gardener at Gordon Castle when smoking the greenhouses, which are much resorted to by Bats for shelter (*in lit.* July 16th, 1892).

Plecotus auritus (*L.*). The Long-eared Bat.

There can scarcely be any doubt that this widely distributed British species occurs around Inverness, and that far from uncommonly, but, curious to relate, we cannot lay our finger upon any other actual records up to date of going to press. This absence can only be accounted for by want of observation, as specimens have been obtained from several adjoining districts, and we have obtained specimens from West Inverness-shire (Argyll).

For the same reason, no doubt, there has been a dearth of records from either Sutherland or Caithness, Argyll and Inner Hebrides (though it does occur there), Outer Hebrides or Orkney. There appears certainly much to be done yet in the distribution of our smaller Mammalia. No doubt it remains to be seen whether westerly distribution or easterly distribution of this species is most maintained.

Order **INSECTIVORA.**

Family **ERINACEIDÆ.**

Erinaceus europæus, *L.* **Hedgehog.**

The Hedgehog is found not uncommonly from the eastern parts of Ross-shire southwards, and even inhabits some of the wilder and less frequented glens, such as Guisachan, where we are told it is plentiful (1893). It seems pretty generally distributed all through the more cultivated areas of Ross- and Inverness-shires. One of the earliest recorded examples near Inverness was taken, Mr. Macleay informs us, at Millerton, close to the town, in 1862, since which time the species has rapidly spread. We noted them as common at Scotsburn in 1887, and have records from many other places in the east of Ross-shire, though, as far as we know, the Hedgehog is not as yet found in a wild state in Sutherland, although it has been introduced on several occasions. The last known to us was in August 1888, when Mr. Houston brought four, two of each sex, from Ross-shire,[1] and turned them into his garden at Kintradwell, from whence they made their escape, as they usually do under similar circumstances.

We find the old *Statistical Account*[2] silent as regards this mammal and its occurrence anywhere within our area. Other negative evidence is also given by authors. Fleming, about 1827, set the limit of its distribution to the northward at the Moray Firth, but he does not descend to particulars. Thos. Macpherson Grant,[1] writing to Dr. Gordon, under date of 12th November 1844, says:—'The first Hedgehog I have been able to hear of at Ballindalloch was taken in a vermin trap in the summer of 1829. Since that period they have become quite common, and, during the bright moonlight nights of autumn, they are constantly to be found near the house. I have handled many different ones of various sizes during the same season. . . . The food of those I have captured seemed to consist chiefly of the minute brown beetles abundant in cow-dung, but, while confined in a box for the night, they have eaten small portions of apples or pears placed beside them.' In another note, attached to his collection catalogue, Mr. Macpherson Grant says:—'They used to be pretty common at Rothiemurchus.'

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[1] St. John makes no mention of the Hedgehog in any of his works on Morayshire (1847).

[2] Afterwards quoted as *O.S.A.*

Regarding the authenticity of the records by the numerous writers in the *O.S.A.*, it is now almost impossible to ascertain definite and reliable facts. However, such names as can be repeated as worthy of credence we wish to notice here once and for all. The late Dr. Gordon assured us that the Rev. James Smith of Monquhitter could be relied upon for all his own personal observations, being exceedingly cautious, and 'a gentleman highly distinguished both in moral and natural science' (*O.S.A.*, parish of Monquhitter, p. 151).

Also the Rev. Alex. Smith, author of the *Philosophy of Morals*, an intimate friend of the Rev. James Smith, and writer of the article in the *New Statistical Account* of the parish of Banff for Messrs. Blackwood and Sons, Edinburgh, can be relied upon in most cases.

In 1832, or about that time, the Rev. Wm. Forsyth[2] remembers that the Hedgehog was supposed to be extinct (*sic*), and that thirty years afterwards, say 1862, it had become quite common, and, adds Rev. Mr. Forsyth, *in lit.* to Harvie-Brown, 'I suppose is so still, though not so numerous of late years.'

In 1838, when MacGillivray wrote his *British Quadrupeds* for Jardine's 'Naturalists' Library,' he spoke of it as only occurring 'in the southern and part of the middle divisions of Scotland,' and distinctly avers, 'but is not found in the northern districts of the latter country, nor in the western or northern islands.'

The late Dr. Gordon, in 1844, spoke of it as very rare,[3] and added:—'A few years ago, when clearing away the foundations of an old wall near Elgin Cathedral, one was found.' He speaks of it also as 'occasionally met with in Strathspey.' To this, in an edition printed in 1889, at Elgin (*q.v.* p. 12), 'with appendices to the present date,' he adds the note: 'Cawdor, *auct.* Mr. Stables, who was factor there';—and: 'the Hedgehog is by no means so rare on the east side as it is on the west side of the Spey (1855), getting more abundant in Moray'; and in 1845, the *New Statistical Account* says:—'The Hedgehog (and Squirrel) have not yet reached the district of Kiltarlity' (*loc. cit.* vol. xiv. p. 493).[1]

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[1] Thos. Macpherson Grant, Esq. of Craigo, and an Edinburgh Advocate, presented all his collection of birds, mostly collected around Ballindalloch, which place he rented, to the Elgin Museum, along with an elaborate and careful catalogue and notes, which we often quote. Mr. Macpherson Grant was a gentleman of considerable scientific attainment, who contributed articles to the *Edin. New Philosophical Journal* of the time (1830), *e.g.* 'The Brocken on Ben MacDhui,' October 10, 1830, etc., quoted from *The Speyside Guide*, Forres, 1852, *q.v.* p. 84.

[2] Rev. Dr. Wm. Forsyth, long resident clergyman of Abernethy parish, and a gentleman who has devoted a large share of his leisure and attention to the antiquities, history, and natural history of his native parish. Dr. Forsyth was an early correspondent of the late Dr. George Gordon when that gentleman was preparing his *Fauna of Moray*.

[3] *Fauna of Moray*, Zool. 1844, p. 421.

On the banks of the Deveron, on the other side of the watershed of Spey, as we are informed by Mr. W. A. Brown,[2] it has been known for quite forty years, say since 1850, and in or about 1852 it was well known around Carr Bridge on the river Dulnan to Mr. W. Robertson, the old and well-known Spey salmon-fisher.[3]

Lately Edward spoke of it as follows: 'Ever since I remember, "Hedgey" was altogether unknown, or at least very seldom seen, in Banffshire. Now he is plentiful, and seems to be still on the increase.'

Of its present distribution, it may be said to be tolerably abundant and general throughout all the districts of Strathspey and Speyside, Deveron, and south of the Moray Firth, but still to be somewhat more abundant on the right or east bank of the Spey, though not uncommonly met with on Elchies and other parts of the lands on the west side, to which it has no doubt gained access by road and railway bridges at Carron and Craigellachie. The direction of dispersal has almost without doubt been from southerly directions, assisted in comparatively recent years by the erection of bridges over the Spey.

Mr. R. Thomson speaks of the Hedgehog as 'one of the best known of our nocturnal animals. We have often,' he continues, 'met with it in the woods after sundown, searching intently for its supper during the dim twilight. While thus engaged, it frequently betrays its presence by the fussy habit of snuffling and blowing when burrowing for grubs amongst thick herbage.' Mr. Thomson adds:—'Among us it has no bad reputation for its reputed malpractice of sucking eggs either in the hen-house or the game-preserve.'

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[1] But in the *New Statistical Account* no fewer than ten parishes are named as containing the Hedgehog, viz., St. Fergus, Fyvie, Alford, Strathdon, Chapel of Garioch, Birse, Logie-Buchan, Drumoak, Lumphanan, and Leochell-Cushnie, all in the faunal area of 'Dee.' We mention this as a *side-light*, showing a probable line of their advance from south-eastward.

[2] W. A. Brown, long resident gamekeeper at Rothiemay.

[3] Still resident at Carr Bridge, 1892.

Family **TALPIDÆ.**

Talpa europæa, *L.* Mole.

Local Name.—Moudewort (Gordon).

Abundant everywhere, going far up the glens and even on to the hill-sides. Numbers must be destroyed on the low lands along the river-sides during heavy floods, but we fancy a good many save themselves by swimming, if not too far under ground at the time, nor too far from a bank, as we have seen them swimming well on occasions.

As long ago as the date of the *O.S.A.* it is recorded on Spey (parish of Kirkmichael), though not mentioned anywhere along the Deveron valley; but Edward includes it as common in Banffshire.

Its present distribution is very general, and it is an abundant species in the Deveron valley and as far up the river Avon as Delnabo.

Mr. R. Thomson informs us 'that the Mole was so abundant at one time that the local mole-catcher was paid the sum of thirty-five shillings, at the rate of 2d. per tail, for Moles destroyed in one season on the Mains of Glenferness.' Mr. R. Thomson continues:—'This same man informs us that, during a pretty long experience, in addition to the reputed *white moles* occurring at Dalness, Cawdor, he found in his traps only one pure albino in 1877 at Milton of Moyness; two grey specimens in 1872 at Drummin, in Edinkillie, and the same year another couple with pale yellow bellies on the farm of Carnoch, in the Streens.' We are pleased to find also, from Mr. R. Thomson's notes, that 'the farmers of Ardclach are too sensible of the undoubted benefits conferred upon agriculture by the incessant toils of this humble field-labourer to advocate, as in some districts, a policy of complete extermination towards the whole race.'

The albino variety occurs also at several localities, and is not 'unfrequent at Dalness on the Findhorn' (*Fauna of Moray*, 1889, p. 12).

A very good albino specimen was killed at Morvich, in Sutherland, March 1893.

Family **SORICIDÆ**.

Sorex tetragonurus, *Herman*. Common Shrew.

Local name.—Straw-Mouse (R. Thomson).

Present Distribution.—Abundant; general. Cromdale, Speyside (*auct.* Wm. Evans, *in lit.* 1891). Elgin (*auct.* Wm. Eagle-Clarke). Specimens sent by Rev. Dr. Gordon for Edinburgh Museum (1891). 'Banff plentiful' (Edward). Ferness, Findhorn, 1893 (R. Thomson).

Common everywhere, and is found at high elevations, as, for instance, within 100 feet of the top of Meall Fuarvounie, which is 2700 feet above sea-level, and lies on the north side of Loch Ness (A. Hepburn). In some notes sent us by Murdoch Matheson, who lives about five miles from Invergarry, he mentions he caught a Shrew near the top of Maoil-an-Dogairt, in January 1888, which was hunting flies and earth-worms. In March of the same year he observes that 'several Shrews have been going about all day: they dive under the snow and go for yards before they rise again.'

In a paper written by Mr. William Taylor, Lhanbryde, that gentleman says that the Common Shrew is very abundant in the neighbourhood. It lives in dry as well as wet places, and is found abroad during the most intense frost searching for food. It is very prolific, often having seven young at a time.

Mr. R. Thomson, in his excellent notes in MS. on the fauna of Ardclach, points out that the 'Straw Mouse,' though popularly classed with the Common Mouse, possesses insectivorous, and not rodent, teeth—an object-lesson well worthy of use in our schools if we give object-lessons in natural history. Mr. R. Thomson has some very pleasant notes upon its habits, and how its presence may be often detected by 'its sharp, excited notes' from 'many a mossy bank.' A certain superstitious feeling still clings around its presence in Ardclach, as in many other parts of Scotland.

Sorex minutus, *L.* **Lesser Shrew.**

This has only been recently recognised as an inhabitant of Moray, specimens having been sent to Mr. W. Eagle-Clarke, for the Edinburgh Museum, by the late George Gordon, LL.D., in 1891. Although Dr. Gordon realised that there were certainly two species of Shrew in the Province when he wrote his reprint of the *Fauna of Moray* (1889), this species was not accurately identified. We have little doubt its distribution is general over Scotland, as well as among the Isles, although actual data are still desiderata. Mr. W. Taylor says it is common near Lhanbryde; he caught ten specimens amongst the heather in a wood near there.

Crossopus fodiens (*Pallas*). **Water Shrew.**

The Water Shrew is not uncommon in the eastern parts of Sutherland, and has been taken on several occasions near Brora and Golspie, and indeed it is a widely distributed species. It has been observed at Invergarry by Murdoch Matheson.[1]

Mr. W. Taylor considers this species scarce in the neighbourhood of Lhanbryde, but he had procured three specimens: one at Lhanbryde, one in Barmuckity, and one from Lochnabo; this last was got under the ice during the heavy frost of January 2nd (1891). Two were seen trying to get out, when some boys broke the ice and succeeded in catching one of them.

The Water Shrew is far from uncommon, although not often observed. Mr. Thomson tells us:—'Our cat procured a couple of specimens for me from the same stream, near the school-house, but, as in the case of their nearest relative, refused to eat them.' Several have been caught also lower down the Findhorn, near Forres, in January 1892, and sent to Mr. Eagle-Clarke for the Edinburgh Museum. The species seems to have been generally recognised and included by Edward, who speaks of it as exceedingly shy and difficult to obtain, and he was never able to trap any of them. Pitfalls in their runs appear to be the best way to capture them.

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[1] Murdoch Matheson, ghillie to Captain Ellice of Invergarry, an observant lad, to whom we are indebted for many notes from the district of Invergarry.

Order **CARNIVORA.**

Sub-order *FISSIPEDIA.*

Section ÆLUROIDEA.

Family **FELIDÆ.**

Felis catus, *L.* **Wild Cat.**

Though now almost, if not quite, extinct in the east of Sutherland, five-and-twenty years ago the Wild Cat ranged freely over all the northern portions of the area, but since then it has rapidly decreased. To enumerate all the occurrences, even during late years, would be a long task, and of little practical use, as, even yet, the creature exists in many, though widely scattered places. Indeed, it is probable that, with the increased number of deer-forests, the species may even be spreading, trapping, naturally, not exercising such influence where deer are the principal objects of preservation, as where grouse are concerned. In several places the proprietors try to preserve them, though they still get caught in the traps set for other wild animals.

As the species is now so rare in the east of Sutherland, we may here repeat that one was caught in a rabbit-snare at Kirkton, near Golspie, by Mr. S. Sherlaw, in April 1888, the last we know of as having been taken in that part of the country belonging to our present area (*Annals of Scottish National History*, July 1892).

At one time they inhabited the large cairn of Sletal regularly, and our friend Mr. Houston of Kintradwell has had many from that locality. They have become almost extinct there since 1882, but on one occasion, in winter, the tracks of one or of a pair were seen in their old haunts, and the animals were not disturbed. For further particulars we would refer our readers to a paper on 'The Past and Present Distribution of the Rarer

Animals of Scotland,' by Harvie-Brown, in the *Zoologist* for 1881-2, and also to the *V. F. S. and C.*, p. 75.

In the more eastern parts of Ross-shire the Wild Cat is fast approaching extinction, if it is not already extinct. The last known to us as having been obtained there was killed by Mr. A. Macdonald about 1873, and it was even then considered rare. In Strathconon they existed about ten years ago; ten or fifteen years before that they were very plentiful.

They travel, however, long distances, as is evident from their tracks in snow, and other signs constantly brought before the notice of the foresters, shepherds, fox-hunters, and gamekeepers, who are well acquainted with their habits and haunts. A very considerable district may be thus tenantless for a number of years, and they may suddenly reappear at haunts long since believed to have been deserted for ever. They naturally choose the cairns most suitable for their harbourage on arrival in a new country; and thus cairns long ago known as the favourite haunts of the species are rediscovered and reoccupied. In this direction of inquiry the great use of the study of topography and the names of localities is evident, if one desires to form a correct notion of the early distribution of many species.

In 1889 we received abundance of records of their existence over a wide tract of country north of Loch Ness, including returns and dates from Drumnadrochit, Glen Urquhart, Glen Affric, Mam Soul, Chisholm's Pass, and over the watershed of West Ross; and they were then returned as 'abundant' from several of these districts, both in the valleys of the tributaries which flow east to the Moray Firth, and in those of the streams which flow westward from the 'West Ross' watershed. Thus in Glenmoriston they were reported as numerous by Mr. Peter Burgess, factor, as many as a dozen or twenty being usually trapped during the winter months; and indeed it was reported at that time as 'still common on the north side of the Caledonian Canal' by numerous correspondents.

Mr. Charles Harvie, of Largo, Fife, saw one alive in Glen Affric, in a cage in a gentleman's court-yard, and skins hanging up in gamekeepers' museums was far from an uncommon sight, between that glen and the Chisholm's Pass, and down to the shore-line on the west side of the ridge.

In 1880 three large Wild Cats were trapped by Mr. A. Frazer, gamekeeper, in the deer-forest at Portclair, Fort Augustus, and more could then have been killed; and farther to the north, amongst the wilds of Fannich, they were still reckoned abundant. Several had been killed during the previous ten years—1870 to 1880—by foresters, but little or no trapping had been done for some four or five years. Mr. John Maclennan, forester in Fannich (since deceased), a good observer, wrote to us in 1880:—'One was seen last winter not five miles from Loch Luichart. The track was seen, in the winter of 1879, of a three-legged Wild Cat in the snow, about three miles from here—Fannich Forest Lodge, Loch Luichart—and probably was the same that had left a leg in a trap some years ago.' Seven years ago Maclennan shot a fox and a Wild Cat from the same cairn, the former of which had a litter of cubs.

Mr. James Sargeant, gamekeeper at Beauly, informed Harvie-Brown (*in lit.* 7/v/80) that he had killed thirty-six Wild Cats since 1874, and designated the species as 'the commonest of our wild animals at that time.'

In 1880 large numbers of true Wild-Cat skins were hanging up in the premises of Mr. M'Pherson, saddler, Kingussie, which, along with the skins of unusually large '*tabbies*,' had been collected for sale from a large area of the Highlands. Amongst these there were very few from any localities south of Loch Ness.

The late Lord Tweedmouth—then Sir Dudley Coutts Marjoribanks—wrote us that 'true Wild Cats are trapped every year at Guisachan, Beauly—from five to eight every year since 1855. In the season 1879-80 five have been taken already, and the trapping season does not end till the 1st of May. At present they are considered to be on the increase, owing to the larger number of deer-forests' (*in lit.* 30/i/80). By 1892, however, he informed us the Wild Cat had already become much scarcer, and only two were taken during the past winter. Even there the sure process of destruction is very significantly traceable, the vast deer-forests occupied by American millionaires failing to afford the *feræ naturæ* sufficient refuge.

At Invergarry Wild Cats are occasionally trapped, but this is more by accident than intent, as Mrs. Ellice, the proprietrix, preserves them as far as possible, and they only get caught when they enter traps set for other vermin. Two were killed in 1886, and Mr. E. C. Ellice wrote us:—'I am sorry to say that one of the keepers killed two Wild Cats this year. It is impossible to keep them out of the traps set for vermin' (*in lit.* December 4th, 1886). Another seems to have been killed at the same place on May 9th, 1888, and yet another in the winter of 1891-2, so it would appear that they are not so very rare in that district.

The wild districts lying along both shores of Loch Ness were great resorts of Wild Cats, and even at the present time they are more abundant in the forests on the north side than elsewhere, though this does not mean that they are by any means plentiful. A fine pair were sent in from Dundreggan to Inverness for preservation in March 1893. One was killed at Strathgarve in August 1892, but Mr. Mackenzie, the head-keeper on Ben Wyvis, tells us they are extinct there now, only one or two having been killed in the last twenty years.

In a letter dated February 12th, 1893, Mr. A. Ross, keeper at Struy, writes:—'There are a few Wild Cats left alive in this district,—*very few* indeed,—as, with trapping, etc., they are fast disappearing. The last killed here were in January 1891, when I trapped three of them in the same trap in ten days' time.'

In Glen Affric, in 1893, the keeper at Ardnamulloch told Mr. Doncaster that a few Wild Cats were still to be found in the lower part of the glen.

Now turning to the more southern parts of our area, and speaking of dates and distribution down to the present time, we have little indeed to record except negatives since 1880.

As long ago as 1844 Dr. Gordon spoke of its rarity. He says:—'Found only in the largest deer-forests and sub-alpine rocks and valleys of The Province. One killed at Cawdor Castle measured, from the tip of the nose to the tip of the tail, 3 feet 9 inches, of which the tail occupied 15' (!).

About Delnabo, on the river Avon, and above Tomintoul, it was spoken of as having become extinct by 1855.

Writing in 1891, Mr. W. Robertson said:—'Seventeen years ago—say 1874—when I had charge of all Duthil Forest, one of the men brought in a real Wild Cat, which is the last I have seen or heard of with certainty.'

Captain Dunbar-Brander of Pitgaveny, who has lived in Morayshire for the last sixty years, has no recollection of seeing a Wild Cat or hearing of one having been killed in the low country —*i.e.* a tract between the Spey and the Findhorn along the coast, a distance of eighteen or twenty miles, and which extends inland eight or ten miles to where the hills and the grouse-grounds begin.—High up, between the sources of the Findhorn and the Spey, one is occasionally obtained. Edward mentions one he saw killed in Glen Avon, but gives no date. He considered it extinct in 1882, though once abundant in the higher country.

It used to be not uncommon long ago in Darnaway and Dalvey forests, near Forres, where however it is now believed to be extinct. We are informed of one which was killed at Dalvey about 1861.

All along the Spey the Wild Cat is becoming scarce,—if not extinct,—even in Badenoch and as far up the valley as Laggan, where 'the last, a very old one,' was killed in 1873 at the back of the manse of Laggan. It was not however THE last, nor was it extinct there in 1882. In the Badenoch Forest and on the confines of North Perthshire, Aberdeenshire, Banffshire, and in Rothiemurchus, it is believed to be extinct. In Abernethy Forest it is extinct, and the last killed in Glenmore was in 1873.

T. Macpherson-Grant writes:—'Has several times been killed in former years (at Ballindalloch), but has not been seen for some time. On inquiry of the Abernethy fox-hunter this autumn, I understood him to say that he very seldom, if ever, meets with them now in any part of the wide district over which he ranges' (*in lit.* November 1844).

In all our own travels in Strathspey, Badenoch, and south of the Caledonian Canal, our inquiries for Wild Cats are always met with the same negative reply up to 1891, though craigs and cairns and dens are still pointed out as at one time occupied by them. So frequent are these, and so fresh in the memories of people still living, that it may seem almost unnecessary to enumerate them.

The only very recent note we have of their occurrence in the west of our area, south of Inverness, is that given in the

Scottish Naturalist, vol. i. p. 155 (1871), where Mr. R. Paton of Perth says: 'I have lately been informed that no less than ten Wild Cats have been killed on one property in Badenoch. One I have at present measures 3 feet 6 inches from nose to tip of tail.'

On the other hand—but ten years later than Mr. Paton's record—we ourselves examined a number of skins said to have been obtained in Badenoch, whilst in the hands of a local middleman not far removed from that district, all of which were simply large 'tabbies,' which, undoubtedly, in many cases, rival in size and beauty the true wild breed, and to an ordinary observer would pass current easily enough. Mr. Eagle-Clarke also tells us 'he was informed that a specimen was captured near Kingussie in February 1891.' We examined a number of skins that year offered for sale, but failed to find one true Wild Cat amongst them.

Still more recently, however, we saw a Wild Cat that had been sent in to Inverness by Mr. J. Chisholm, gamekeeper at Foyers, and which had been killed there in March 1893. This Cat had been going about for three months previously. Mr. Chisholm further adds in a letter, dated March 7th, 1893:—'I have here killed fourteen Wild Cats in one winter about ten years ago, and, to the best of my knowledge, there has *only one* been killed in this district for the last five years; but they are still very numerous in Glenmoriston and Portclair forests.'

From this and some other notes we are inclined to think that these forests are the last strongholds of the Wild Cat throughout the whole of our present area, and probably in Great Britain.

Mr. R. Thomson dismisses the Wild Cat very summarily from his *Fauna of the Parish of Ardclach.* He says:—'An undoubted specimen has not been found here during the present generation. Any reputed occurrence for many years past, when examined by an expert, has always turned out to be simply the streaked variety of the domestic cat run wild.'

Perhaps the last likely authentic record from the eastern districts—if it is authentic—is Edward's, who stated that one was obtained in Glen Avon, which measured over four feet in length, etc.

Wild Cats are mostly nocturnal in their habits, and, as a rule, inhabit deep rocky cairns. Being fond of warmth, they have a habit of lying on the top of a rock basking in the sun, as we, on one occasion, had the pleasure of witnessing. Being very acute in the sense of hearing, and lying as they do always close to their holes, they are very difficult to see, unless one knows exactly where they lie, and very carefully stalk up to the place. St. John says their cry, that heard at night, is singularly harsh and unpleasant; he also adds that they were getting scarcer at that time, or even previous to the date of 1846.

Section CYNOIDEA.

Family **CANIDÆ.**

Canis vulpes, *L.* **Fox.**

Local Names.—Tod, Reynard.

Despite the fierce and continuous war waged against the Fox in most places, it holds its own much better than the other larger indigenous mammals. No doubt the species, like all the others, is much indebted to the number of deer-forests for the firm hold it still has in the hilly districts, but it rarely, now at least, descends to the cultivated parts.

That it holds its own in Sutherland and East Ross, the following paragraph from the *Inverness Courier* of February 7, 1893, shows distinctly :—

> Foxes in the North.—Mr. Peter Mackintosh, keeper on Mr. Flower's estate of Glencassley, Sutherland, is year by year reducing the number of foxes on that estate. He killed or captured 48 foxes of all ages, including four dens,[1] in 1889, 3 foxes in 1890, 17 in 1891, and 6 in 1892, being a total of 107 foxes in four years. Besides foxes, he killed during the past year a wild cat, which measured nearly five feet from nose to point of tail, 1 pole cat, and a number of hawks, stoats, and other vermin. In the course of the past year, Mr. Hugh Macleod, keeper at Langwell, Strathoykel, on Lady Ross's estate, killed 6 foxes, 4 dogs, and 2 vixens—all full-grown. For this

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[1] *i.e.* the *inhabitants of* four dens.

the Strathoykel crofting tenants have rewarded him with six fleeces of wool, being one fleece for each fox.[1]

Mr. Mackenzie says that Foxes have held their own, if they are not even increasing on Ben Wyvis, and this despite the efforts of himself and the other keepers to exterminate them.

Captain Ellice says that Foxes have much increased of late years at Invergarry owing to the large number of deer-forests where no trapping goes on; twenty-five were killed there in 1885. They were found at Ardnamulloch in Glen Affric in 1891 (Doncaster).

Foxes seem to vary a good deal in size; what is called the 'Old Highland Fox' being much larger and very rare in comparison with the ordinary Fox. One keeper tells us he has only known of one or two of these large ones in the last forty years, the others being common enough. He thinks they are called in the south the 'Greyhound Fox.'

Even previous to 1844 we find, from a letter to the Rev. G. Gordon of Birnie, from T. Macpherson Grant, Esq., lessee of Ballindalloch, that Scotch Foxes were sent to England to be turned out into the fox-covers there; 'as many as thirteen (all young) were sent from Ballindalloch at one time, and shipped by steamer to London.' As is well known, this practice continues to the present day in many other Scottish localities.

The *O.S.A.* has many entries, by which the Fox must have been more abundantly distributed through the low grounds at the close of last century than at the present time. The same work gives returns of it from the Deveron valley, from the Cabrach, in Grange parish, and in Kirkmichael of Spey and Mortlach. Early in the present century, as we are informed by Captain Dunbar-Brander, the Marquis of Huntly kept a pack of hounds, and hunted the Laigh of Moray for his own amusement. He gave them up (to the best of Captain Dunbar-Brander's recollection) when he became Duke of Gordon, and gave over riding. Colonel Brander, Captain Dunbar-Brander's uncle, also kept a pack of fox-hounds for some years, and Captain Dunbar-Brander thinks he gave them up about 1832.

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[1] We do not know that this payment is at all a usual one in other parts of Scotland.

A family party which we saw on one occasion among the corries of Ben Alder, close to Prince Charlie's Cave, early one morning in August, afforded our companions and ourselves infinite amusement for a time by their gambols in the early sunlight. They have bred in this same cairn for many years undisturbed.

The annual crop of foxes is fairly well maintained by those who often reap an annual income from their destruction, on the principle that it is a mistake to 'kill the goose that lays the golden eggs.' In the deer-forests there are fine *kennels* for foxes always, from which fine hill-foxes can usually be obtained.

Captain Dunbar-Brander, speaking of the former abundance of Foxes in Morayshire when he was a youngster, says they appeared to live amicably in the same burrows with the Badger, which was, at that time, also abundant (*Elgin and Nairn Express*, 22nd July 1893). Captain Dunbar-Brander also speaks of Foxes' homes being usually amongst rocks and natural cracks in peat-mosses; and, where found frequenting the same earths as the Badger, he—no doubt rightly—conjectures that the earths were first excavated by the latter animal. The same gentleman has some interesting and suggestive remarks regarding the cleanliness of wild animals' dens or hiding-holes. He believes this cleanliness may in some degree be due to the fact that they are physically unable to soil them, and proceeds:—'A Fox enters his den crawling on his stomach. He can't stand up in his earth; the roof is too low, and, if he can't stand up, he is obliged to keep it clean.'

Dr. Gordon said that their depredations to the hen-roosts were much more serious about thirty years prior to the date at which he wrote (1844) than now, and accounts for it by the increase of natural food of late years, and not by diminution of their numbers (*Fauna of Moray*).

Of the numbers killed, it is not perhaps of great interest to speak, seeing that a regular crop can, year by year, be depended upon, but one or two instances may be given north and south of Inverness. In Glenlivet, Mr. Petrie, one of the Duke of Richmond's gamekeepers, got nine Foxes in the spring of 1892, and Anderson, keeper at Blackwater Lodge, got twelve.

Mr. R. Thomson sends us some interesting local notes. He says:—'Among the old people here the Fox and his depredations in the hen-roost are still well remembered, but although a stray example from the Cawdor Hills may from time to time be found in the higher grounds, it is doubtful if there is at present (1892) a single den within the bounds of the parish. Some fifty years ago (say 1842), however, the Fox was very common, finding a safe retreat in the ravine opposite Daltra on the Findhorn, as well as among the impregnable cover at the Black Park on the side of Cairnbar.' Mr. R. Thomson then describes Reynard's midnight and moonlight visits to the Gullery on the Loch of Belivat, 'where he feasted sumptuously for several weeks in the year, on the eggs and young of the Black-Headed Gulls (*Larus ridibundus*) and other water-fowl.'

'The gamekeepers of Glenferness,' continues Mr. R. Thomson, 'state that the individuals met with in the district are slightly darker and a shade smaller than specimens occurring in the lower and better cultivated flats. This circumstance may account for the old belief, now almost forgotten, that the former variety was known as the "Sheep-fox," while the latter was usually called the "Fowl-fox."'

Section ARCTOIDEA.

Family **MUSTELIDÆ.**

Mustela martes, *Linn.* Pine Marten.

The Marten is now a very rare animal in the north of our area, though perhaps not so rare as the Wild Cat. For this we think we are indebted to the large deer-forest of Reay (W. Ross), which marches with our present area in the extreme north-west, and where the Marten seems still to maintain a precarious footing. Every now and then a pair breed on Ben More, and they and their offspring descend to the lower straths, when most of them meet with the usual fate of such animals by the steel-trap. A male was shot in Glencassley, in the Duchally wood, in November 1886, and as others were trapped just over the march on the adjoining property the same winter, it looks as if one of these sporadic visitations had occurred. The last we know of as having been taken in the Moray portion of the county of Sutherland was sent from Lairg, as mentioned by Mr. Snowie in the *Inverness Courier* of November 22nd, 1889.

In the east of Ross-shire it is extinct, as also in Fannich Forest: the late forester, Maclennan, had never seen one there up to 1882. In Strath Conon the Marten was very abundant, but that was previous to 1860, since which time none have been seen; the last known was killed about that date.

About 1860-2 a number of Martens were killed at Dundonnell (West Ross); they seem to survive longer in the western districts. A female was killed at Loch Rosque in June 1892; we saw it in Inverness, where it had been sent for preservation.

In an article by Mr. Archibald Hepburn, in the *Zoologist* for February 1848, entitled, "Notes on the Quadrupeds and Birds of the Northern Districts of Inverness-shire," that gentleman says that the Marten was not then uncommon, particularly in the wooded wilds of the upper parts of Strath Glass. We need hardly add that such is not the case now; indeed, were it not for the great increase and extent of deer-forests, Martens would probably before this have become extinct. Rabbit-trapping, and the ease with which the Martens are taken in baited traps, have pretty nearly ended their existence.

At Guisachan Martens are probably extinct, as none have been seen there for two years, and not even a track (1892). Up to 1870, five or six were trapped there annually, and one from Plodda, a mile and a half from Guisachan House, and another from Knockfin, the former taken in December 1875, and the latter in January 1878, are now in the gun-room at Guisachan. Two more were taken near there in April 1880.

In the extreme east of the county they are extinct, and, as we have just seen, are getting very rare even in the wilder glens. Mr. A. Ross, keeper, Struy, says there are hardly any Martens left there; the last he got was in December 1892.

Mr. J. Chisholm writes us from Foyers, March 7th, 1893:— 'The Marten Cat is now very rare in this district. There was one trapped at Knockie about sixteen years ago, and I trapped another in Boleskine woods ten years ago, and two more were trapped here last year—the last I have heard of in this district for twenty years; but forty years ago they were so common here that one man, who is keeper here, and is still alive, took no fewer than fifteen of them one winter in traps.'

Ten years ago the Marten was not uncommon in Glenmore, Rothiemurchus, and Glenfeshie. It was then found in Badenoch, but was believed to be extinct in Ben-Alder forest, none having been seen for several years previously. At Invereshie four were trapped during the two years of 1879 and 1880.

Captain Dunbar-Brander informs us that a pair appeared in a wood near Burghead about 1866 or 1868. They were caught and stuffed, and were for years in a gunmaker's shop in Elgin. 'Not the oldest poacher or keeper had ever seen one here—at Pitgaveny. It was a mystery how they came, or from where.'

Curiously, the *O.S.A.* is silent as to the occurrence of the Marten; but this is not really very significant as regards the Moray Basin, as the same old record is more than usually meagre in all its Natural History statistics for our present area, as compared with its fulness of detail in other areas, such as 'Argyll.'

Even in 1844 it does not, however, appear to have been abundant, as Dr. Gordon records one killed some years before in the Oakwood near Elgin as a somewhat uncommon occurrence, and Thomas Macpherson Grant says:—'An individual, probably of this species, was trapped in a fir plantation about seventeen years ago, but I have not been able to learn of any having been since seen' (T. Macpherson Grant, Esq., *in lit.* to Dr. Gordon, November 1844), and it is still rare in the above-mentioned locality; we have a record of two, one from Speyside, May 1863, and another from Ballindalloch, May 1879.

Edward gives details concerning one which was seen, in 1848, to descend from a tree in the hills of Boyndie and enter a rabbit's hole, but which escaped the attempt to dig it out.

Mr. James Grant, in a list of Vermin sent to us as having been killed on Roseisle—to the east of the village of Findhorn, and near Burghead — whilst including the commoner vermin, also makes entry of the *Marten Cat* at Inverugie, near Hopeman, but does not give the date (*in lit.* 1885).

Writing in 1891, Mr. William Robertson says, that it is over thirty years since he saw a Marten or a Polecat about the woods upon the Dulnan.

The Marten was considered as extinct in the valley of the Avon (Strathspey), but one was killed in 1885 near Delnadamph, as reported to Harvie-Brown by Frazer, the keeper at Delnabo, near Tomintoul.

Mr. J. G. Phillips (formerly Curator of the Elgin Museum) spoke of it in 1886 as 'slowly dying out.' Mr. Phillips has had many opportunities of personal inspection and inquiry, as he made many pleasant excursions amongst the Inverness and Banff hills, about the sources of Glenlivet and Avon.[1]

St. John relates that Martens are fond of fruit, and will climb the bushes after it; in one instance he trapped one of these creatures that came nightly to steal his raspberries. The same author seems to have early come to the conclusion that there was no difference between the two species of Marten,—as indicated, until lately, on the British list;—and we are indebted to the late Mr. E. R. Alston for finally settling that question.

Martens linger longest where there is abundance of native pine woods. Their power of concealing themselves must be very considerable if we look at the curious sporadic occurrences of the species at localities apparently long previously untenanted; but the true cause of these isolated occurrences, there is every evidence to prove, is the wandering habit of the species. They could scarcely for so long escape the rabbit-traps set in numbers in the Lowlands; and it is only amongst the rough boulder-strewed hillsides and old pine woods, or amongst the rank growths of heather, where there are comparatively few rabbits, and where they are not systematically trapped, that Martens can long exist in security. Rabbit-trapping in the Lowlands, and game-preserving and baited traps in the Highlands, we believe to be the two principal factors in the exterminating process as regards the Marten. We cannot, owing to this wandering habit, so easily trace a boundary line between the districts inhabited and those uninhabited by the species, but a sufficiently accurate idea can be formed if these notes be studied, map in hand.

Mustela vulgaris, *Erxl.* **Weasel.**

Local Name.—Mouse-Weasel.

Very abundant; and this may arise from the great amount of shelter afforded it by old dry-stone dykes, and the amount of cultivated and planted areas which give an increased amount of food-supplies in the shape of mice and rats, which seem to be its principal quarry. Weasels also catch frogs at times, though one would hardly think they were very succulent morsels to such creatures.

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[1] *Vide* his *Highland Wanderings.*

In 1884-5 the Glengarry keepers killed eighty-five weasels: this, however, cannot be taken as any criterion of their actual numbers, as these would only be taken on the lower grounds, and not on the hills. About Foyers, Mr. Chisholm informs us that he has noticed for some time back that Stoats are getting rarer and the Weasel increasing in numbers. The Struy keeper writes us that there are very few Stoats and Weasels to be seen there, and puts this down to continued trapping and shooting.

The Weasel is recorded as common and general through all our oldest records, and is still very abundant and generally distributed, notwithstanding all efforts to diminish its numbers. Without doubt the increase of food-supplies, in rabbits and game and abundance of micro-mammalia, tend rather to an increase of their numbers than a decrease. On the low grounds of Moray —Laigh of Moray—this species is the most abundant, exceeding in numbers the larger species, or Stoat-Weasel, whereas, in the interior and more mountainous districts the latter is the more frequent. A few statistics, selected from many of a similar nature, will give some idea of the numbers of this little self-assertive carnivore. Thus, seventy-five were killed in six weeks' time at Roseisle by Mr. James Grant, of which the greater portion were the true 'Mouse-Weasel.'

In the Banff Museum is a strange-looking group of Weasels. These were found in a hollow tree near Banff in 1863, and presented to the Museum by Mr. Manson, inspector of works, Chalmers' Hospital. This whole group is in a dried-up or mummified condition, and the individuals appear to have died whilst wriggling and fighting with one another.

In the *Inverness Courier* of 19th July 1892 there is an account of a swarm of Weasels on the Nairn golf-course. It says:—'The other day the ground-keepers on the Nairn golf-course came across a drove of Weasels. There appeared to be some fifty of them. The two men attacked the Weasels with sticks and killed three of them, but the others escaped.'

Mr. R. Thomson of Ferness defends the character of the Weasel—we think with some justice—as 'a welcome visitor about the farm-square and stack-yard, where it is of great service in destroying mice, rats, and voles, which prey upon the farmer's crops.'

Mustela erminea, *L.* Stoat.

Local Names.—Fite Futterets, *i.e.* White Whitterets (Edward).

Still abundant and universally distributed; and its frequency no doubt in part arises from the same causes as mentioned under the Weasel. To these may be added the increase in the number of Rabbits of late years. At the same time, Hepburn informs us, in his papers in the *Zoologist* before mentioned, that Stoats were very abundant in the forest of Glen Affric, where, at the time he wrote, there were no Rabbits: they were commoner than Weasels. We are not certain that the Stoat is so dependent upon supplies of Rabbits as the Weasel is; indeed, the two species occupy somewhat different ground, as a rule, in their respective areas of dispersal.

We do not know whether it has been recorded that Stoats kill Squirrels, but a ghillie we had in Caithness, in the autumn of 1891, informed us that he had himself seen one in a tree in pursuit of a Squirrel when staying with an uncle of his—a Mr. M'Nicol, at Highfield, near Tain.

Mr. R. Thomson, to whom we are indebted for so many useful local notes from Ferness on the Findhorn, very concisely compares its numbers in his district with those of the smaller allied species, thus:—'Not so frequent as the former-mentioned species. A specimen or two may be met with now and again all over the parish. Sometimes during winter (Mr. R. Thomson here refers to comparatively low altitudes) it becomes perfectly white, excepting the tip of the tail, which remains black throughout the season.'

The *O.S.A.* is silent as regards the Stoat, but no doubt this arises from a misconception of the differences of the two allied species, all entries being simply under 'Weasel.'

In Glenlivet, Mr. J. G. Phillips notes it as 'far more plentiful and far more destructive than the rarer Martin,' or Polecat.

Stoats are excellent swimmers; two were seen crossing Loch Garry in successive days, and one was shot by Captain Ellice. The loch is at least half a mile in width.

Mustela putorius, *L.* **Polecat.**

Local Names.—'Foumart'; 'Fozzle' of Moray (*auct.* R. Thomson of Ferness).

Almost, if not quite, extinct in the north of our area, but the same remarks which we have already made under 'Marten' may well apply here. In 1881 a keeper trapped eleven in Glen Loth. The last we have notice of was trapped at Glencassley in 1885.

We have no records of the Polecat from East Ross, and it is more than probable the beast is extinct, at least in the lower-lying ground. It was at one time very abundant in Strath Conon, but is now rare there; it is still common in Strath Bran, and is found in the adjoining deer-forests, as we are informed by A. J. Balfour, Esq., M.P. (*in lit.* 17/v/80).

Writing to us in 1880, the late Mr. Maclellan—long time well-known forester on Fannich—says that the last he trapped in the forest of Strathvaich, near the northern confines of our present area in North-west Ross-shire, was about nineteen years previously—say 1861. He believed, however, that at the time he wrote there were still a few in some parts of Ross-shire.

Polecats were very abundant formerly in parts of our northern area. Thus, in the *Highland Note-Book* of Carruthers it is stated that no fewer than one hundred and nine Polecats were killed during a war of extermination waged against vermin on the Glengarry shootings during the three years between Whitsuntide 1837 and 1840. They existed there as late as 1879, and they are probably there yet—1888,—but are not particularly hunted. Hepburn, in his paper before referred to under Marten, says that Polecats were common north of the Caledonian Canal, particularly in the wooded wilds of the upper parts of Strath Glass (1847). The species was not extinct in Glen Urquhart and Glenmoriston in 1880, as we were assured by the factor, Mr. Burgess.

From 1855 to 1865 the Polecat may be said to have been numerous at Guisachan, but is now (1893) seldom, if ever, met with. In 1878 two were taken, and three the year before. None were seen in 1880, but about 1883 one was taken in a rabbit-trap, and some have been seen there since. Since 1872 very few have been seen at Struy; the last we heard of was trapped in 1886, and Mr. A. Ross, the keeper who sent us this note, adds: 'I may say they are almost extinct.'

In the districts south of the Great Glen, the Polecat, so far as shown by our returns, appears to be extinct, or nearly so. It is recorded in the *O.S.A.* as occasionally found in Grange parish of Deveron and Kirkmichael of Spey. There used to be a few at Dalvey, near Forres (Elgin), but when our informant left, at Christmas 1876, they had been all killed off. In Darnaway Forest there are now probably none. The brother of the proprietor of Edintore (Banff), Mr. Hay, killed one about 1867-68, but none have been heard of at that place since. The locality is known to us, and was in a bank of whins near Keith. He caught it alive by the neck, like a ferret, carried it home and then killed it. Thomas Edward's encounter with a Polecat in the ruined Castle of Boyne will be remembered by those who have read the *Life of a Scotch Naturalist*, by Smiles. Writing in 1891, Mr. William Robertson, whose name we have several times already mentioned, said it was over thirty years since he had seen a Polecat in the Dulnan valley.

On Rothiemay property, on the river Deveron, there were killed seven Polecats between 1864 and 1869, and none have been seen since to date of 1891, as we are informed by Mr. W. P. Brown, gamekeeper there, in a return sent us of vermin destroyed. Mr. J. G. Phillips speaks of it as 'much more common in Glenlivet in 1885 than the Wild Cat or Marten.'

At Fochabers the last Polecat was obtained about 1887, as we are informed by Mr. James Wedderspoon, factor, Estates Office, Fochabers.

'In November 1891 the boys attending the Ferness Public School, while at play on the bank of the Findhorn, succeeded in killing a fine specimen of the Polecat, and brought the carcass to show us what "a big Weasel" they had caught. In this parish (*i.e.* Ardclach), as elsewhere, the Polecat has now become extremely rare, on account of the incessant war carried on against the species by the local gamekeepers and others.'

In Ben Alder Forest one Polecat was seen near Loch Errochd Lodge in 1878. None have been seen in Abernethy and Glenmore for thirty years; the last was trapped there in 1860. The last obtained on the Belville estate was about 1873, and the last we have recorded from the Glenshero estate, parish of Laggan, was obtained on October 8th, 1867.

At the date of 1880 it was believed by Colonel Macpherson of Cluny that this species still existed in Badenoch (*in lit.* 21/xi/80).

We are informed that the Polecat, though very rare, still exists (1893) along the shores of Loch Ness in one or two favoured localities.

Lutra vulgaris, *Erxl.* Otter.

Unless it be for his skin, there seems no reason why the Otter should be so persistently done to death. That he takes a salmon at times there is no doubt, but he is just as fond, perhaps fonder, of eels and flounders, and there are many places in the Highlands where he might be left alone, even if he did, on occasions, make a raid on the trout. They are found both in the inland waters and amongst the sea-rocks; one place in the latter situation where they were particularly abundant being the cairns and caves at Nigg Head.

Though, like all other unprotected mammals, getting rarer, Otters are still spread over the greater part of the northern districts. Two winters ago we saw one diving about in the Ness just above the main bridge, but they rarely show themselves much during the day-time. They seem to be less common in some of the unfrequented districts than one might be led to expect; thus they are said to be very rare at Guisachan, the last having been killed there about 1880.

The *O.S.A.* has numerous notices from far up among the hilly districts down even to the Lossie and the Laigh of Moray and the shores of the Firth.

Many are reported in Dr. Gordon's *Fauna of Moray*, to be habitually captured on the Lossie, Findhorn, and Nairn, and indeed it is of really such common occurrence, and keeps its average strength of numbers so persistently, while it ranges far and near on its periodical migrations after its various seasonable feeding, that we see little need to enter into very minute particulars of its distribution. All authors agree as to its abundance and general dispersion along all the great waterways of Moray, its habits, however, not permitting every one to observe it.

That it is rarer now than formerly may as a fact, perhaps, be accepted. Still, its numbers are not diminishing in such rapid ratio as others of our *feræ naturæ.* Mr. R. Thomson of Ferness says it is still to be met with along the whole course of the Findhorn, and adds:—'As we write (MS. already quoted) a fine female has been caught in a trap at Glenferness (11th April 1892). 'Jacob's Banks' are the headquarters of the Otter in the parish of Ardclach,' and again on 25th April, another was trapped in the same place, close to Glenferness Gardens, by the gamekeepers.

Captain Dunbar-Brander of Pitgaveny, however, considers it much rarer than formerly upon the Lossie. He says:—'Whereas formerly their prints could be seen any day, now it is only about once in a season these are seen' (*Elgin and Nairn Express*, 22/vii/93). About 3 P.M. on the 20th April 1895, Harvie-Brown, when fishing the 'Mid-Heron' pool of Laithers Water of Deveron, saw an otter plunge in on the opposite side. The keeper on Netherdale, next day, found his marks close to the place. The Duke of Fife's cruive-dyke at Duff House having been carried away by the heavy winter's ice on the river, an unusually early run of salmon took place, and no doubt Mr. Otter followed closely after.

Meles taxus, *Schreb.* Badger.

Even as late as thirty years ago the Badger was widely distributed throughout the northern portions of our area, but has been gradually disappearing since then. In the 'sixties' specimens were sent to Macleay from various parts of our area, but very few of late years. The following are some of the entries in his book:—Corriemony, Jan. 1861. Parkhill (E. Ross), Dec. 1863. Cantray, 1864 (S. Division). Alness, March 1865, and another in 1869. Cluny, Dec. 1877 (S. Division).

We have no later records from Sutherland than 1879, when two were killed on Ben Bhragie, Golspie, and were brought to Mr. G. R. Lawson. They are preserved by the Duke about Dunrobin as far as possible. From 1877 to 1881 several others were killed in other parts of Sutherland, between Ben Armine and Glen Loth.

South of the Dornoch Firth we have only one later record than those already given, for the eastern sides of the counties of Ross-shire and Inverness-shire, viz., the following, extracted from the *Inverness Courier* for March 31, 1893:—

'DINGWALL.—There is at present on view in the shop in High Street, Dingwall, of the Messrs. Macleay, gunmakers and naturalists, a beautiful specimen of a male Badger, shot by Mr. John Laidlaw at Rogie, near Garve. The Badger measures fully three feet from snout to tip of tail.'

In May 1879, distinct evidence of the presence of a Badger was found by the forester in Fannich Forest, it having passed the winter in a den there. In the course of the preceding spring a Badger was trapped in the neighbouring Forest of Braemore, a few miles from where the above evidence was found. These are the only ones heard of or seen in the district for a very long time. In Strath Conon it is reported as having been very common before game was preserved, but appears to have become rare since 1860. The last killed was about 1872. At Struy, also in the east of the county, it is reported as being almost extinct. Mr. A. Ross, the keeper, writing us from there, says:—'The Badger is quite an animal of the past here; the last one killed was in 1876; about twenty years ago they were very common' (*in lit.* 12/ii/93).

In other places, where it was once common, the Badger has become quite rare. The last seen at Guisachan, in the centre of the county of Inverness, was trapped at Cougie, four miles from Guisachan House, in the winter of 1855, and none have since been seen, as we were informed by the late Lord Tweedmouth. Its former residence there is indicated by the name of a waterfall close to Guisachan, called to this day *Eassan-nam-broc.* A little more inland, in Glen Urquhart and Glenmoriston, it still exists, though not very plentifully. 'At the present moment,' writes our informant, 'there are two Badgers within two miles of where I write.' This was in March 1880. It is reported also as not yet extinct in the Glenmore district, south of the Spey. Farther west, and north of the Caledonian Canal, it is still abundant about Fort Augustus. [In Badenoch, Badgers are counted rare, but are still present in Ardverikie and Ben Alder deer-forest; and an informant told a correspondent of ours that two years ago he counted no less than thirteen Badgers sunning themselves in a choice spot not far from Ardverikie Lodge. They are carefully preserved there—as indeed are all the native wild animals—by the proprietor, Sir John Ramsden, Bart.—ARGYLL and TAY.]

Mr. T. Macpherson-Grant writes as follows:—'Badgers were numerous at Ballindalloch a few years ago, and then became, for a while, almost extinct, owing to the perseverance of the present gamekeeper in destroying them. This year, however, they again returned, and eight or nine were trapped during the spring. It seems to be now almost conclusively ascertained that these animals prey upon poultry (and probably upon game also), though the justness of the accusation was at one time doubted' (*in lit.* November 1844).

The Badger does not appear to have been of very general distribution in the valley of the Deveron even at the date of the *O.S.A.*, but it is noted as occurring in Kirkmichael parish over the watershed, and in Mortlach parish, which is situated partly in Deveron valley, and partly in Spey.

In 1884 Rev. Dr. Gordon speaks of it as 'occasionally trapped in the woods by gamekeepers and others. Its nocturnal habits and sequestered retreats prevent any satisfactory estimate of its numbers in this part of Scotland.'

When a boy, Captain Dunbar-Brander knew of four Badgers' 'earths' within four miles of Pitgaveny, which always held Badgers, and, says Captain Dunbar-Brander, 'we often used to try our terriers at them. They are gone.'

It is quite likely that there is truth in the remark which has been made, that the great floods of 1829 destroyed great numbers of these animals, which frequented the lower reaches of the rivers. (Vide *Lays of the Deer Forest*, ii. p. 268.)

Between 1864 and 1869, three Badgers were killed on Rothiemay estate, and none have been met with there since, as we are assured by the keeper, Mr. W. A. Brown, before named.

'The last Badger in the parish of Ardclach was caught by Mr. Linton, gardener, Glenferness, and kept alive for three months till

Xmas 1880, when it managed to escape among the rocks of its native river' (R. Thomson, *in lit.* 21st May 1892), at the 'Rock Walk,' a short way below the mansion-house. The remains of a Badger-warren are still distinctly traceable among the soft soil at 'Jacob's Banks' (R. T. *in lit.* February 1893).

At the date of May 1893 there were certainly two Badgers upon the Netherdale estate lower down the river Deveron than Rothiemay. Mr. Fraser, the keeper, shot one and trapped three about 1888. One of these is now in the possession of Captain Keith Maitland, who then instructed the keeper not to kill any more. They were still present in 1894; and in 1895 two were trapped or otherwise obtained at Forglen, about five miles lower down the Deveron than Netherdale. None had been seen there previously for fourteen years.

Captain Dunbar-Brander tells us he knew of three 'earths' in the Oak Wood near Elgin, one in the Balmuckity Wood, one at Todholes,[1] now called Pitairlie, one in the wood at Clays Briggs, and one in the brae at Ardivot (*Elgin and Nairn Express*).

The last Badger Captain Dunbar-Brander remembers seeing was one which Mr. St. John and himself dug out in a belt of wood near the road passing Lochnabo. This would be about 1854. Gordon, now a working gardener in Elgin, dug for them. 'Possibly,' continues Captain Dunbar-Brander, 'there may still be an earth near the old Danish camp on the top of the Quarrywood Hill, as I have heard of a poacher who ran a Badger into a net spread for a hare in that neighbourhood.'

In Nairnshire the Badger is scarce, but they still exist in Darnaway, and twenty-seven years ago they were numerous at Dalvey; one, perhaps the last, was killed there about 1876. In the Keith district the last obtained was a sow with four young, which were trapped upon Keith Lodge shooting about 1868.

In 1891 a family of Badgers was seen by a keeper in Nairnshire playing about together, both young and old. None of them were molested, so it is probable that the species may live some years yet.

A correspondent of ours writes us:—'So far as I am able to judge, there is not in the Highlands of Scotland any place where the Badgers are so numerous as from —— to —— along the sides of Loch ——. I could let you see several cairns in which they have their dens, and where they live all the year round. It is really very interesting to watch their habits. In my opinion they are very harmless to game, except young rabbits, hence I don't try to exterminate them, and don't allow the under-keepers to set traps at their dens' (*in lit.* 7th March 1893).

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[1] Tod-holes or Fox-holes. As Captain Dunbar-Brander informs us—'The Fox and the Badger seem to live amicably in the same earth,' *loc. cit.*

When trapping Badgers some experienced keepers set the trap on one side, as otherwise the Badger's belly will spring the trap, *i.e.* if it be placed in the middle of the trail. Others say they rout out the ground with the nose, and so shove the trap away; but this is no doubt merely a fancy, arising out of a desire to account for repeated failures. They are stated to kill young rabbits, and also to take pheasants' eggs, but not before these are partly incubated.

Sub-order *PINNIPEDIA.*

Family **PHOCIDÆ.**

Phoca vitulina, *L.* Common Seal.

The Common Seal is very plentiful in the Dornoch and Beauly Firths, some of the sandbanks in the former place being at times quite covered with them. In the Beauly Firth many complaints have been made as to the destruction of the salmon caused by them, but no action seems to have been seriously undertaken to reduce their numbers, and we hope, for all the harm that is done, that no such action will be taken. This small seal is also found at times at the Little Ferry, though it now rarely lies on the sandbanks there, from being constantly shot at; farther south it is much rarer, as it also seems to be in the Cromarty Firth.

Mr. Donald Gillies,[1] now a very old man, but who all his life has had much experience of the *feræ naturæ* of the Highlands, told us that many years ago, when they were rafting timber down the river Oich, he and others saw seals on one or two occasions on that river. Even yet, they, though rarely, ascend the river as far almost as the Bishop's Bridge.

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[1] Donald Gillies is a native of Glengarry, but was for many years keeper at Alt-na-harra, Sutherland, where we first met him.

The *O.S.A.* speaks to the numbers of seals frequenting the coasts of Moray at that time thus: 'Seals, whereof one man has killed 130 in a year, worth four shillings a piece for their oil and skin,' and speaks of them as 'frightening salmon away from a shallow coast' (*op. cit.* parish of Dyke and Moray.

Similar experiences are related at the present day, but such, we have good reason to know, are not always raised on the true issue. The damage actually done by the seals themselves is perhaps quite counterbalanced by the damage done by the bag-nets, or their 'leaders.' Seals are still abundant along the shores and at the bars and mouths of rivers, especially the Findhorn, Spey, and Deveron, but they are not so plentiful nor so destructive as the 'forests' of stake- and bag-nets which range for miles along the coast-line.

The Common Seal does not usually ascend the river Spey, but quite lately two or three ascended about half a mile above Speymouth, and one was shot by Mr. Cuthbert, the head gamekeeper, at Gordon Castle (*Elgin Courant*, December 2, 1888). *Rod*-fishermen, at least, ought to welcome such a phenomenon, as showing that salmon do get up, at least in the fall.[1] If the salmon did not get up the seals would not be there.

Phoca grœnlandica, *Fab.* Greenland Seal.

The only evidence of the occurrence of this species among the marine mammalia of the Moray Firth is given in our volume on the *Fauna of Sutherland and Caithness.* It has occurred at least twice. A young one is preserved in the Dunrobin Museum; another was merely skinned, and the bones thrown away.

Halichærus gryphus (*Fab.*). Great Grey Seal.

This species seem to be entirely confined to the coast-line, not entering many of the firths. It is still not uncommon about Brora, where a very fine one was shot at the beginning of 1893 by Mr. Houstoun.

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[1] Of course long prior to that date the nets had been taken off, and His Grace and his guests had enjoyed the grand salmon-fishing to the full. Let us pray—Spare the poor seals, also the otters, and give them their infinitesimal share of these leavings of the nets; and grant *one month more in spring* for spring fish to run.

Order **CETACEA.**

Sub-order *MYSTACOCETI.*

Family **BALÆNIDÆ.**

Balænoptera musculus (*L.*). **Common Rorqual.**

There is an articulated skeleton of an adult male of this species, sixty-eight feet long in a straight line, from the Moray Firth, in the Natural History Museum, South Kensington, which was acquired by purchase in 1882.

In 1884 a specimen of this Whale, fifty feet long, was thrown ashore between Nairn and Brodie, and was sent to Aberdeen, where it was dissected, and the skeleton exhibited at the meeting of the British Association there in 1855 (Struthers' *Account of Whales*, etc.). In August 1888 another specimen, over sixty feet long, was brought ashore at Muirtown, Inverness, and sent south for exhibition, we believe to Birmingham. It had been found dead in the Moray Firth, and we saw it as it was about to be put on trucks for conveyance south, but had no opportunity of examining it minutely. It was either one of this species or a Sibbald's Rorqual.

Balænoptera sibbaldii (*Gray*). **Sibbald's Rorqual.**

Sibbald mentions one, probably of this species, which came ashore at Boyne in Banffshire. It was eighty feet in length exclusive of the tail (Fleming, *History of British Animals*, p. 32).

Megaptera boops (*L.*). **Hump-backed Whale.**

We gave evidence of the occurrence of this species within our present area in our volume on *The Vertebrate Fauna of Sutherland and Caithness.*

Sub-order *ODONTOCETI.*

Family **PHYSETERIDÆ.**

Sub-family *TIPHIRNÆ.*

Hyperoödon rostrata (*Müller*). **Bottlenose Whale.**

The skull of one that had been driven ashore near Brora, and now in the Dunrobin Museum, was referred by Professor Sir W. Turner to this species.

Another was stranded alive at Fraserburgh, just within our area, in 1871. It measured 19 feet 3 inches in length (*auct.* Professor Struthers' 'References to Papers on Anatomy, Human and Comparative,' by John Struthers, M.D., 1889, *Journal of Anatomy and Physiology*, vol. for 1871).

Mesoplodon bidens (*Sowerby*). **Sowerby's Whale.**

'The first example of this species which commands the attention of naturalists was an adult male, sixteen feet in length, which was cast ashore in 1800 on the estate of James Brodie, Esq. of Brodie, Elginshire, the skull of which, along with a drawing of the animal, was forwarded by that gentleman to the late Mr. Sowerby, who figured and described it, in 1804, in his *British Miscellany*, under the name of *Physeter bidens*.'

This—the type—is still preserved in the Museum of the University of Oxford.

Family **DELPHINIDÆ.**

Sub-family *DELPHINÆ.*

Delphinapterus leucas (*Pall.*). **White Whale.**

Dr. Gordon informed us that a Beluga was seen off Lossiemouth in 1883. One was caught at the Little Ferry, Sutherland, 9th June 1879, and is now in the Dunrobin Museum (*auct.* Dr. Joass, Dunrobin; vide *Fauna of Sutherland and Caithness*, p. 85).

Globiocephalus melas (*Traill*). **Pilot Whale.**

There is a specimen of this whale in the Dunrobin Museum, but the species does not seem to visit these coasts in such numbers, nor to be ever driven ashore, as so often happens in the Orkneys and Shetland.

Phocæna communis, *F. Cuv.* **Porpoise.**

Local Names.—Penak or Louper-dog, Pelak.

Very abundant, more especially during summer and autumn, when the herrings visit the coasts of the Moray Firth.

Order UNGULATA.

Sub-order *ARTIODACTYLA.*

Family CERVIDÆ.

Cervus dama, *L.* Fallow Deer.

Fallow Deer occur all through the woods along the north side of the Dornoch Firth, from Dornoch to Rosehall. They were introduced to Skibo somewhere about 1840, and to Rosehall in 1876. Farther south they are found at Brahan, Loch Luichart, and Balmacaan, and we have seen some good heads from the latter place. At Loch Luichart many young ones died in the winter of 1891-92 in consequence of the long and severe storms.

The earliest record of the Gordon Castle herd which we can find is contained in the *O.S.A.*

We had an opportunity of seeing the Fallow Deer in Gordon Castle park in August 1893, and counted about 140 to 150 head. The park itself appears to be of small extent, and we were informed only a small portion of the surrounding woods—pine woods—is added to it.

We would like to have been able to give a more detailed account of the whole history of this herd of Fallow Deer, which history we have little doubt exists in the charter-rooms of the Castle, because it seems to us extremely probable that it was amongst the first herds established in the North of Scotland, or along the margins of the Moray Firth, and the one which, from time to time, has sent off branches to other parts of the country which are contained within our present area. Perhaps before finally going to press our wish in this matter may yet be fulfilled, but hitherto any inquiries we have made have been in vain.

Mr. Robert Carruthers in his *Note Book* (second edition, 1887), referring to the date of 1843, being that of his first edition, tells us:—'The deer-park at Gordon Castle contains 135 fallow-deer, 37 very large red-deer, and 4 roe-deer. In the forest, outside the park, there are some hundreds of the large red-deer, and a great number of roes.'

Cervus elaphus, *L.* Red Deer.

A hundred years ago, although the Red Deer was perhaps as widely distributed as it now is, it certainly was by no means as abundant: and we believe we are right in saying that the greatest increase has taken place within the last thirty years, or even in a less space of time, when, owing to the decline in the value of sheep, turning the sheep-farms into deer-forests became more profitable to the landowners.

Although in the Sutherlandshire area of Moray there are only two so-called forests, Ben Armine and Dunrobin, yet there are many other smaller portions of land cleared of sheep, and on most of the sheep-farms and all through the extensive woods of the south-east of the county, deer are to be found in varying numbers.[1]

In Ross-shire we have the older forests of (part of) Rhidorroch, Alladale and Deanich, Diebidale, Kildermorie, Wyvis, Strathvaich, Loch Luichart, Fannich, Strathconon, and Monar; and in that part of Inverness-shire north of the Caledonian Canal we have Glenstrath Farrar, Glen Cannich, Fasnakyle, Affric, Guisachan, Ceanacroc, Glenmoriston, Balmacaan, Portclair, Invergarry, and Glenquoich. Many of these are of very large extent, and there are other smaller ones which we need not mention here, besides the sheep-farms, a number of which hold a more or less fluctuating stock of deer.

The large woods of the Black Isle still hold a few Red Deer, mostly now on the Rosehaugh estate, though from all accounts the stags are poor in quality. Before the Cromarty Woods were cut down some fine heads were obtained.

The making of new forests causes many places in their immediate neighbourhood to be for a time quite deserted by deer. Cutting down a favourite wood has also cleared them out of a district, especially when there has been no forest near at hand to keep them. Such a wood in East Ross used to hold a number of deer, among them some very fine stags, but they almost entirely deserted the neighbourhood with the loss of their favourite cover. Since then much ground thereabout has been replanted, and the trees being now of good size, an odd stag is again occasionally seen, though the nearest forest must be quite ten miles away. This shows what wanderers deer are. It is astonishing how quickly a new forest stocks up. No doubt the clean fresh pasture has something to do with this, and probably the younger deer would be the first to come as permanent residents, being driven off, as in the case of some birds, by the older ones from the parent forest. Possibly the mortality may not be so high in the newer ground, the spring of the year being very fatal to two-year-olds: and wet is more hurtful to them than dry cold.

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[1] We may here state that with reference to the two buildings mentioned by us in the *Fauna of Sutherland and Caithness*, p. 87-8, as being the remains of deer-traps, it has since been pointed out to us that these were more likely the remains of old hill-forts. We do not venture ourselves to give any opinion on the subject, though we had very good authority for what we then stated.

Many years ago the stags, though fewer in number, carried much better heads. As the numbers and size of forests increased so did the number of stags, but the horns dwindled in size, possibly from over-stocking, but this latter effect was certainly also encouraged by all the good old, as well as the promising young stags being killed off, few ever reaching maturity. Now, however, the area under deer is so vast that the killing off all the best ones is almost an impossibility, so that from this cause, as well as from hand-feeding in the winter, the horns are gradually increasing in size, and much finer heads are seen now than was the case some years ago. Now-a-days, also, both proprietors and lessees are more careful of their forests: the stags are not over-shot, the young and promising ones are left to mature, and the hinds are kept within proper limits as to numbers. In fact, many well-managed forests are now as well looked after as grouse moors are, and although a great deal of the wild nature of the sport is done away with, no doubt the stag-producing capabilities of the areas under deer have been very largely increased, as has also the size of the horns, aided, in some of the higher grounds, by hand-feeding with Indian corn and hay.

We quite well remember, some twenty or five-and-twenty years ago, that a 'Royal' was a comparative rarity, and the shooting of one was mentioned with some degree of pride in the local papers. In those days some eight or ten 'Royals,' perhaps, in a season, would be sent to Inverness to be stuffed, and the number of heads of all kinds received by the late Mr. Macleay would not be very large. Now, this is changed. The heads are becoming, in many places, much better, both in quality as well as the number of points. 'Royals' can be counted almost by the score: and there are always a dozen or more over that number, occasionally bearing as many as fifteen or sixteen points. The number of heads sent in now is enormous, Mr. Macleay in the season of 1892 receiving over five hundred, and most of these were from the north-west side of the Caledonian Canal. Of course there are many heads that go elsewhere to be preserved; some sportsmen only preserve one or two of the very best trophies of the season, perhaps out of sixty or seventy stags killed, so that the number of deer shot each season through the Highlands must be something enormous, especially when we remember, in addition, that through the winter the foresters are engaged in killing the full complements of hinds.

An open winter, if followed by a fine spring (this latter, perhaps, being the most important season), is pretty sure to be followed by a season producing good heads: this was very noticeable in the year 1893. The previous winter and spring were very open, and the autumn proved a record one for heads, including Lord Burton's celebrated twenty-pointer, which was shot in Glen Quoich. That year some seven hundred stags' heads were sent in to Mr. Macleay's establishment in Inverness, and among them were some, to our idea, far finer than Lord Burton's twenty-pointer, being thicker in the beam, and wider set, though not carrying anything like the number of points. In this respect Lord Burton's must be the record for Scotland, and likely to remain so.

Occasionally stags are 'hummel,' *i.e.* hornless, even when not castrated, but there seems to be always a slight swelling of the bone where the horns should be. This, too, is the case when there is only one horn more or less perfect, the other side having a corresponding knob. One was killed in 1886 at Invergarry by Captain Ellice, who writes us:—'I killed a very curious one-horned stag; we had known him about five years, and he has never had more than one horn. He was always one of the first to come into season. The skull on the hornless side is quite smooth, except for a very little knob' (*in lit.* 2/xii/86). This occurs also in an example we shot in Sutherland.

Captain Ellice of Invergarry informs us that about eight or nine years ago 'some pure white deer (*Cervus elaphus*) were turned out; these have done very well, and are now wild in the woods, and cross freely with the ordinary Red Deer. As yet the calves have all been pure white, without any spot or tinge of red' (*in lit.* 1885).

Later, in 1887, Captain Ellice writes:—'Our white stag was killed by a neighbour, and so there are only the hinds left; there are three hinds and two calves. The three hinds are very pure in colour, but the calves are of a creamy colour; this may only be because they are not full-grown, but it looks suspicious.'

It appears that in the early part of the present century, before so many forests were made, and deer became so numerous, that the proportion of fairly adult stags was larger in regard to the number of hinds than is the case now. The following extracts from a diary kept by George Sutherland, keeper to the Duke of Sutherland, shows this. This diary appears to have been kept and shown as a report of what deer he saw in his travels, to the then factor at Dunrobin, Mr. Gunn, and to have extended from October 1827 to June 1831. 'November 18th, I saw eight bucks and two hinds, and on another part I saw five large bucks and ten hinds in one lot. On the 19th I saw fourteen large bucks on said farm. On the 20th I saw one large buck on said farm. On the 21st inst., I saw sixteen in number, between hinds and fawns, on Mr. Reed's farm.'

'December. On the 5th I saw fifteen hinds and fawns at Benarmine; 9th, on the same ground I saw ten large bucks; 15th, saw fifteen bucks in same day; saw twenty-four hinds and fawns, etc.'

There is much more of a like nature in the diary, which it is unnecessary to quote further, but it all tends to show the great proportion of stags to hinds that existed in those quarters at that time.

Once the weather allows them, the deer take to the high ground, the first thing in the spring to tempt them from the low ground being the 'mossing,' some particular sedge with a succulent stalk that comes first on the flows and wet places in spring, and afterwards develops into the well-known cotton-grass. Stags are fondest of very high ground in the hot weather, the green mountain tops covered with coarse grass having great attractions for them, though some few remain in the woods. But wherever they are, their great object is to keep off the flies, in the latter case by keeping quiet in some patch of gigantic brackens, where they are quite invisible; in the former by taking advantage of every breath of wind. On a hot day they may be seen standing and lying on any patches of snow that may be left.

Sure-footed as they are, there have been instances known when a stag on being frightened has broken his leg on running through a very rough corrie. On one occasion a forester saw an eagle swoop down on a wounded stag.

Stags can swim well, and they have a habit of going into lochs and swamps for certain water plants; occasionally one gets drowned by becoming entangled in the weeds; one was found at the Powder lake at Invergarry by Murdoch Matheson, that had lost its life in this manner.

Hinds calve about the end of May, but mostly in June; they leave the calf for the first week and suckle it in the place in which they leave it; after that the calf follows its mother. A hind will be nearly two and a half years old before she breeds, and three years old before she has her first calf.

Of course, in these days of wire-fencing, stags must be much circumscribed in their travels during the rutting season; but in former days the Highlanders seem to have set no bounds to the extent of their expeditions at that time. One of the finest old heads we have ever seen was shot by a poacher in the Strathspey district, 'many years ago'; it was well known on its rounds during the rutting season, *and was supposed to have come from Sutherland.* There can be no doubt that stags do travel long distances during the rutting season, and one or two instances of very tired animals have come under our own notice.

Many forests are now partially, some wholly, wired in. Were the places they frequent in the Highlands as fit for cultivation and habitation as England, then the Red Deer would no longer exist in a wild state, but would be confined to deer parks, as is the case in that country; it is, we think, as well for everybody that such is not so, for various reasons, which need not be stated here.

As it is, these wire-fences must have a great influence on the habits of deer. Deer dislike a wire-fence very much until they get used to it, and it is only stress of weather, or the sight of some extra good feeding on the other side, that will tempt them to jump one.

We are quite of the opinion that a stag, until killed, or turned from his usual course by a new wire-fence, will come to the same piece of ground to look for hinds year after year. We well remember being told that, for two years, on the same day and the same hill, a stag with thirteen points had been seen. The very first year of our tenancy, Mr. Winans was engaged in putting up one of his numerous wire-fences, and—our thirteen-point stag was not seen again. Had he been killed in the neighbouring shooting we should most likely have heard of it, and that year Mr. Winans was not shooting the end of his ground that marched with us. No doubt there are many other sportsmen who have noticed the same thing.

Deer that are accustomed to come and feed on the low ground at night regard these fences much less than a real hill deer, and the greatest offenders in this respect are those that have been hand-reared, which have lost their fear of man, and have become accustomed to wire-fences. We well remember watching a stag on a hillside walking along a fence; he must have walked a quarter of a mile alongside it before he could make up his mind to go over it, stopping now and then and looking to the other side. At last, having decided to jump, he went over without the least effort; of course this was only a low sheep-fence.

The *O.S.A.* (vol. vii. p. 364) speaks of Red Deer as inhabiting the Cabrach; and that work also mentions that they were induced to take up their abode in a newly planted forest in Elgin (vol. ix. p. 173). It is related also that they occurred in Kirkmichael parish (Spey) [*op. cit.* vol. xii. p. 449]; Abernethy and Kincardine (Spey) [*op. cit.* vol. xiii. p. 136]. 'Came to Lord Fyfe's plantations in Elgin and remained' (Spey) [vol. xv. p. 99]: '1000 or more head in Glenfiddich Forest, in Mortlach parish' (Banffshire), [vol. vii. p. 418]: and the *New Statistical Account* speaks of the Monadhliath Mountains as containing very large deer (*N.S.A.* Inverness, vol. xiv. p. 55). At one time, says the last quoted account, the largest deer in Scotland were supposed to frequent the Monadhliath Mountains, their predilection for it being caused by the abundance of lichens, and a species of fungus. We think in this account the name *fungus* has been applied to the white reindeer moss or lichen, which, whilst dry and easily broken in dry weather, becomes tougher and sappier during rains.[1]

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[1] The popularly so-called Reindeer *moss* is a lichen (*Cladonia rangiferina*, Hoffm.), and in reply to our inquiry Dr. Buchanan White wrote as follows :—'It is common on hills, mountains, and heaths in Great Britain and Ireland—from the Channel Islands northwards, and from the sea-shore up to a high altitude (I don't know that it occurs in every county, but it is widely spread throughout the country). The geographical distribution embraces Europe, North and South America, Asia, Africa, India. The height of the plant in Britain is from 2 to 6 inches (the latter, I

The principal deer-forests of the southern portion of our area are Ben Alder in the south-west, Gaick by the headwaters of Tromie, Glen Feshie, Rothiemurchus, and Glen Fiddich and Blackwater; and on the north side of Spey, Kinveachy or Monadhliath.

Passing up over the hill by the site of Prince Charlie's Cave, near the forester's house on Loch Errochd side, and crossing the low col, the pedestrian descends by the bhalloch' into the great circular hollow formed by the summits and steep amphitheatre of the rocks of Ben Alder. In the hollow lies the lovely Loch an Bhealloch Bhuie—the loch of the yellow pass. So deeply lies this sheet of crystal water—almost with a greenish tinge,—that it is comparatively late in the day that it feels the sun-rays on its breast. It is about a mile long, and is composed almost entirely of ice-cold spring water. Hundreds of little springs run in on all sides, and rise from its margins all round, both on the north and south shores. Ten feet of its depth was taken off by the late Lord Henry Bentinck, and this was effected by a cutting at the lower end, where the water runs east into Loch Pattack, and thence to Loch Laggan, and by the Spean to Banavie. But the whole drainage of Ben Alder Forest does not flow down the Pattack, the Mashie contributing its quota to the Spey. Therefore we have thought it better to speak of it here, as it has not been included in Argyll.

This cutting was made in order to give the deer a passage across the narrow part of the loch when disturbed on one side and when making for the sanctuary, which lies on the other, or the north side of the loch,—a huge and high corrie just under the highest peaks of the mountain; but the loch itself is reckoned in the sanctuary, and a shot is never fired near to it, nor is it in any way disturbed. The loch contains lovely trout, averaging nearly half a pound towards the top end of the loch, but smaller in size towards the east end. Enormous baskets have been killed on it, but only very occasionally, as it is seldom fished.

There are said to be about three thousand head of Red Deer, and of this number there are some eight hundred stags upon this western half of Ben Alder deer-forest next to Loch Errochd, and

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should imagine, is extreme). In Lapland it is said to grow at least 1 foot high. There are one or more closely allied species in Britain' (*in lit.* February 1893).

during severe winters they are reported to suffer less than in more northern forests—such as those of Sutherland and Ross.

From the forests farther east Red Deer often wander into the lower grounds, down the Spey valley, to the grounds of Gordon Castle, and formerly even as far as the Laigh of Moray. From the forests of Glen Avon, Inchrory, and Glen Fiddich they occasionally scatter out over the Carn districts, and are seen on Ben Rinnes, coming down in severe seasons to the woods of Aberlour and Carron, and swimming the Spey. But deer in Inchrory are mere 'birds of passage.' One day a thousand head may be seen upon Inchrory ground, and the next not a dozen (*auct.* Captain Dunbar-Brander). Captain Dunbar-Brander remembers when the woods around Lochnabo held many deer at all times, but the Duke of Richmond fenced off the Glenfiddich Forest, and now for many years they have ceased to frequent these coverts. The Red Deer was undoubtedly originally a woodland species almost as much as a moorland one, and they still cannot resist the temptations and allurements of planted ground.

In Castle Grant woods, we are informed, fresh blood was introduced, as was ascertained by Mr. William Evans during a visit paid there by him in 1891.

On the lower reaches of the Findhorn and the district around Ferness and adjoining grounds—say an area of eighty miles in diameter or more,—'only a few straggling individuals are now and again to be met with, under stress of severe weather. In former times, when the old forest of Lochandorb stretched its broad wing over the south-eastern section of the parish as far as the river Findhorn, Red Deer were plentiful enough. A small holding—Auchendaur—on the Glenferness estate, was so named in early times from the fierce contests which annually took place on that spot between the stags during the rutting season' (R. Thomson's MS.).

We think the following, taken from the *Northern Chronicle* for August 16th, 1893, may prove of value to those of our readers who are interested in the development of stags' horns:—

STAG-SHOOTING STATISTICS.

Messrs. W. A. Macleay and Sons, Inverness, have prepared the following interesting statement regarding the point values of the stags' heads shot in Highland forests during the past four seasons. A study of the figures will show that what may be called the average head, those with eight or ten points, tend to improve in number, while those with less than six points last year diminished by more than a half. 1889 was singularly rich in fifteen-pointers, and 1890 yielded the only eighteen-point head shot between 1889-92.

FIRST 500 STAG HEADS RECEIVED IN SEASONS 1889-90-91 and 1892.

Season.	No. of Points.											Switch.	One Horn.	Hummel.	Malform.	Under six points.	Total.
	6	7	8	9	10	11	12	13	14	15	18						
1889	42	35	83	65	87	55	54	15	5	1	...	2	3	...	4	51	500
1890	57	37	90	64	97	49	32	6	2	...	1	16	2	...	1	46	500
1891	49	32	91	69	111	38	45	4	1	1	...	2	...	2	1	54	500
1892	56	44	87	72	100	46	49	6	4	1	...	10	2	1	1	21	500
	204	148	651	270	396	186	150	31	12	3	1	30	7	3	7	172	2000

As showing the forwardness of the stags in 1893, we may mention that 'while Mr. Donald Mackintosh, one of Mr. John Hargreave's deer-stalkers in Gaick Forest, Badenoch, was traversing his grounds the other day, he came upon royal stag antlers newly cast, and as ripe as if shed in April instead of December' (*Inverness Courier*, 29/xii/93). April is the more usual time for stags to shed their horns.

Capreolus capræa, *Gray.* Roe Deer.

Very abundant in all the lower wooded parts of the area. The finest Roe come from those woods that border upon the large cultivated districts, becoming smaller and scarcer as the upper valleys are reached.

Roe seem most abundant in the woods of Cawdor, Darnaway, Altyre, and Beauly, and at the latter place great numbers used to be shot in the cover-shooting days. Probably a severe winter drives many down from the upper valleys to these large, warm woods, and thus keeps up the supply; but out of the numbers that strive to exist in these far-up glens, many die, as we were informed both by the Guisachan and Invergarry keepers. Certainly, when we were in these parts in the spring of 1892, we saw very few of these creatures. In the large, warm woods near the cultivated land the female Roe has often two calves following her; but this, according to our experience, is much rarer in the higher glens, where one is the more usual number.

Like Red Deer, Roe are great wanderers, and are found during the rutting season, indeed most of the summer, in places they never occupy at other times. Although generally found in woods, this is by no means always the case, as we have seen them miles from any wood, and that too in the late autumn and early winter, where one would suppose they would naturally be making for the warmer covers. Roe are at times found almost in herds, and we have heard of as many as from nine to fourteen having been seen in one lot.

One of the best heads that came to Macleay to be preserved belonged to an animal that had got entangled in a sheep-net, which latter was placed round some turnips in Ross-shire.

The *O.S.A.* gives Cabrach (vol. vii. p. 304), Abernethy, and Kincardine (vol. xiii. p. 136), and Mortlach (vol. xvii. 418).

At present they are very widely dispersed and very abundant in the most suitable coverts. In Pennant's time Roe abounded in the forests of Tarnaway,[1] on the Findhorn, and by the accounts of the Stuarts in their *Lays of the Deer Forest*, were abundant also in 1824.

Roe appear however to have become much scarcer, numbers fluctuating with the destruction or renovation of timber tracts from decade to decade. According to the Stuarts, they almost utterly deserted Tarnaway (or Darnaway) when saw-pits and pine-felling became the order of the day, but now again they are far from being scarce there, in the extensive newly-planted areas.

R. Thomson (Ferness) writes:—'Owing to the vast extent of surface which is now planted, and forming suitable cover, the roe-buck is quite common in every part of the county (*i.e.* of Nairn). It is never seen, however, in the open ground except when it is feeding or passing from one plantation to another.' This fact is not invariable, however, in other districts, where the Roe are often glad to lie out amongst heather, far from wood, to escape from, or in part at least avoid, the plague of flies.

Mr. J. G. Thomson, Grantown, in a letter dated March 19th,

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[1] *Tarnaway* of earlier authors; *Darnaway* as presently applied.

1892, says from personal experience:—'There is a great increase (of Roe) within the last thirty years in Abernethy, ever since the sheep were excluded and the ground put under deer. Old people have told me they are not so large as formerly; this is owing to the females frequently having twins, which are more dwarfish than when there is a single calf.'

Order **RODENTIA.**

Sub-order *SIMPLICIDENTATA.*

Section SCIUROMORPHA.

Family **SCIURIDÆ.**

Sciurus vulgaris, *L.* **Squirrel.**

To go minutely into the whole history of the Squirrel in this area would be too long a treatment for our present work; besides which, this has already been done by Harvie-Brown in a paper called 'History of the Squirrel in Great Britain,' which was printed in the *Proceedings of the Royal Physical Society of Edinburgh*, vol. v., 1880, and reprinted in 1881.

We have given a short *résumé* of this article, with such interesting additions as we have been able to collect since the original was written.

At the present time the Squirrel is an abundant species throughout all our area, with perhaps the exception of the more western and less thickly planted portions of Sutherland and Ross-shire.

In Sutherland, although common in Sir Robert Gordon's time (1630), the species became extinct, probably with the extinction of the old fir forests, and again became an inhabitant of that county about 1859, when it was first seen at Clashmore, as we are informed by Sheriff Mackenzie, who believes that this new introduction took place by way of the bridge across the Kyle of Sutherland at Bonar Bridge. Squirrels became still more plentiful after the railway bridge at Invershin was completed, and are now abundant all through the fir plantations of the east, and have even been seen at the small isolated fir wood at Kintradwell, to reach which they must have crossed over three miles of open country. There, as elsewhere throughout our area, Squirrels are held in check by shooting.

As regards Sutherland and Ross, there can be little doubt that Squirrels spread themselves thither from the re-introduction at Beaufort in 1844.

In Ross-shire we find evidence of the old breed of Squirrels in Glen Einig, a glen wooded even still with some natural Scotch firs, besides birch, etc. This glen runs down from the Balnagown and Freevater deer-forests, and joins the Oykel river a little below Oykel Bridge. Their occurrence here is marked by the Rev. Andrew Gallie in the old *Statistical Account*, vol. iii. p. 514 (date 1792), thus:—'Squirrels are also found in Glen Einig.' From other evidence Harvie-Brown came to the conclusion that they existed at least until 1795, and that severe winter probably hastened their dissolution.

As regards their re-appearance in Ross-shire, Harvie-Brown has only the late date of 1858—from Kilmuir and Tarbert House;—only a year before they were first observed in the neighbouring county of Sutherland, a still farther distance from their centre of re-distribution at Beaufort.

As regards a very large portion of the rest of our area, the evidence is very conflicting as to whether the Squirrel actually died out, and was re-introduced by different people at two or three centres, or whether a few still survived in certain localities, and under more favourable circumstances again spread out from these. It would appear that both causes may have had something to do with it.

We know that during the last century large tracts of the old forests were denuded of their timber, and that it was only towards the end of the last, or in the beginning of this century, that anything in the way of replanting was attempted. Squirrels seem to prefer firs of from fifteen to twenty-five years old upon which to 'work their wicked will,' and there would be very few tracts of these at the time the cutting down of the old timber took place, and this felling would, of course, go on with far greater rapidity than planting. In this way their area would be much reduced, and as game-preserving was not much thought of in those days, the martens and stoats may have helped in destroying the Squirrels, and this, along with several severe winters, notably that of 1795, may have aided in their almost extinction.

From the foregoing remarks we may assume that though the species became extinct in Sutherland, Ross, Speyside, and also the more accessible portions of Moray-, Nairn-, and Inverness-shires, it lingered in some of the wilder and more inaccessible parts of Strathspey, Badenoch, and probably some parts of Inverness-shire. Mr. Grant-Thomson, forester to the Countess of Seafield, informed Harvie-Brown that there is a farm in Abernethy surrounded with trees, called 'Rhinnafeorrich,' or 'Squirrel Field,' which has always gone by that name. About the year 1770 or 1780, and prior to that date, Squirrels were quite plentiful, but about that time there were some very severe winters which killed them all off, *save a very few* that escaped in Rothiemurchus. These gradually increased in number, and spread up Glenmore, and Mr. Thomson's informant remembered *when they were first seen in Abernethy Forest*, and not only overspread that district, but the whole country.

Writing to the Rev. Geo. Gordon in November 1822, Mr. Macpherson-Grant, Ballindalloch, said:—'One only that I have heard of was seen on the property a few years ago. They used to be pretty common in Rothiemurchus.'

In the low grounds of Moray, the Squirrel was seen by Captain Dunbar-Brander of Pitgaveny, first, near Elgin in 1853 or 1854, when one crossed the road in front of him as he was driving to his grouse-moor. From Fochabers, Mr. J. Wedderspoon says that the species was first known about 1860, and it became a great nuisance in two years after that time.

Mr. R. Thomson, in his notes to Harvie-Brown, gives *about* 1852 as the date when it appeared along the lower reaches of the river Nairn, before which time it was entirely unknown there; since then it has greatly increased. At Duthil they appeared about 1850, according to Mr. J. Robertson.

All these last accounts point to the extension of the remainder of the original stock of Squirrels which survived in the Badenoch districts already mentioned, and which, until lately, when, no doubt, the two divisions overlapped, had nothing to do with the Beaufort introductions in 1844, which peopled Ross-shire and Sutherland.

Squirrels were re-introduced into the north-east of Inverness-shire by Lady Lovat at Beaufort, which is close to the borders of Ross-shire, in 1844. It is this exact date which gives us such facilities for comparing and estimating the advance from each centre of the two divisions of Squirrels, and which renders it more than probable that the Badenoch and Rothiemurchus centre populated that part of our area south of Loch Ness and the Caledonian Canal, and the Beaufort centre all the northern portion.

Hepburn records in the *Zoologist* (1848, p. 2010) that Squirrels were common in many parts of the north of Inverness-shire in 1847. In 1848 it was first seen on the north side of Loch Ness, twelve months after it was first met with on the south side on the estate of Aldourie, and in 1850 it had spread over the plantations of Ness Castle.

Mr. N. Burgess, factor for Glenmoriston, informed Harvie-Brown that the Squirrels came from Glen Urquhart, and were first seen about 1844. This date would, however, appear to be too early, unless the species had survived in some of the large forests of the district, which had only comparatively lately been cut down. They were supposed to have been in the Invergarry Woods about 1855.[1]

The late Lord Tweedmouth informed us that the species was unknown at Guisachan (Strathglass) previous to 1857, when a few were observed, and were supposed to have come from Beauly. By 1862 they had become very numerous and troublesome there, and were destroyed in considerable numbers. Since then they have either left the district or died out, and his Lordship added that he never thought they would last long in the upper part of the strath, as they were but a 'poor, shabby, diminutive lot.'

Mus sylvaticus, *L.* Wood Mouse.

Common along the coast of Sutherland. According to St. John, it is abundant in Morayshire, and that gentleman has given a very good account of its habits in his book on the 'Natural History' of that county. Though lying dormant during the cold weather, the species has been observed abroad as early as February 6, at Invergarry.

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[1] Vide *Squirrel in Scotland* (*Proc.* Royal Physical Soc. of Edinburgh, vol. v., 1880).

During his special investigations into the distribution of our micro-mammalia, Mr. Eagle-Clarke received specimens of this species through the active endeavours of that veteran naturalist, Dr. George Gordon, which had been collected in that district. No doubt its distribution is very general.

Family MURIDÆ.

Sub-family *MURINÆ.*

Mus minutus, *Pall.* **Harvest Mouse.**

A specimen was found at Greenscares, Gordonstown, and was presented, in spirits, to the Banff Museum, by Mr. Gardiner, the laird (since deceased). It was sent to Mr. George Sim of Aberdeen, who identified it. Edward recognised it, and says, 'I have myself taken it several times.' He adds, 'It is now well ascertained to be a native of Banffshire,' and he designates it 'the smallest of British quadrupeds,'—which is a mistake, for that distinction belongs to 'The Lesser Shrew' (*Sorex pygmæus,* Pallas). We have never ourselves met with the Harvest Mouse anywhere in Scotland.

The specimen referred to is now in the Banff Museum, in spirits. Mr. W. Taylor says he has found no trace of this species in or about Lhanbryde, although he had made many inquiries about it during the last six months.

Mus musculus, *L.* **Common House Mouse.**

Everywhere abundant. We do not know how to add anything to its already known history, except that Mr. R. Thomson makes the remark :—'The more domesticated variety is smaller, and usually not so dark as the one which is generally found in the vicinity.'

We were informed that there are no mice in Guisachan House.

Mus rattus, *L.* **Black Rat.**

We have nothing to add to the statement before given in one of our volumes (*V. F. S. and C.* p. 91) of the occurrence of this species near Golspie. It is now a question (which cannot, however, be confidently settled), whether the one alluded to was not a specimen of *M. alexandrinus.* But as Dr. Joass originally described it as 'black,' the probability seems in favour of this species being intended.

The following interesting communication is from the pen of T. Macpherson-Grant, Ballindalloch, to the Rev. Geo. Gordon of Birnie:—

'I am reluctant to differ from the opinions expressed in *The Fauna* regarding the cause of the decrease of the Black Rat throughout the island; but my observations tend to support the common belief that they are either driven off or destroyed by the larger brown species.

'It was about twenty years ago, or somewhat less, that Rats were first seen at Ballindalloch; they were then all of the black species, and I find, on reference to some remarks of mine, published in the *Field Naturalist* for 1834, that, down to that year at least, none of the brown had made their appearance. The latter have, however, since arrived, and in proportion to their rapid increase, so have their predecessors diminished, till now at length very few remain. It was at this farm that the brown rats first appeared, and it was thought that soon afterwards the black ones became more numerous in the mansion-house and stables, but it was not long before their rivals followed and supplanted them almost everywhere. I may also observe that the buildings were all slated from the first, and that they still remain in the same condition as formerly. I possess a stuffed specimen of the older species, which is of a curious iron-grey colour, there being even some white hairs intermingled in the fur' (November 1844).

Captain Dunbar-Brander, to whom we are so often indebted for most useful and interesting notes, wrote to us in 1891 as follows:—'The Black Rat was in every house; it lived all over the house, up in the garrets like a mouse. It was far more destructive in a house than the Grey Rat, which seldom leaves the ground floor. This (Pitgaveny) is an old house, and there is a hole cut in every door by them. They got into the unused beds and cut the blankets, and made nests like chaff in a stack.' Captain Dunbar-Brander then continues:—'When Roualeyn (Gordon-Cumming) was a boy, Altyre was overrun with the Black Rat, now extinct. His father paid him so much for every one he killed; he produced the tails to his father. The little mammal was gradually getting scarcer. To keep up the breed

—and his income—Roualeyn used to cut off the tails and let the old she-ones go. This is a fact.'

MacGillivray mentions obtaining specimens of the Black Rat from Dr. Gordon of Birnie, about 1838, and also speaks of the species as not uncommon at Keith—within the Deveron watershed (*History of British Quadrupeds*, p. 238);—and we often hear of their former abundance at localities along the latter stream.

In 1834, Thomas Macpherson Grant wrote:—'Recently appeared at Ballindalloch,' are very numerous, and are the only species of rat known there. James Fennel comments thereon (*Field Naturalist*, vol. ii. p. 102).

In 1880, the late Lord Tweedmouth wrote to us that he had never seen the Black Rat or 'Rotten' at Guisachan, but he suspected its presence in small 'Toons' in remote parts, towards Glenshiel, Glenelg, and the west coast; and this is borne out by an account we have from Osgood H. Mackenzie, Esq., who found one—and only one—dead in a potato-field on Tournaig, on his own property. No one recognised it, nor had seen one before. But in 1889 Lord Tweedmouth (*in lit.* 12th November) again informed us: —'I found a dead specimen of *Mus rattus* this year at Cougie, four miles from Guisachan, but unfortunately it was too far gone for preserving. It is nearly twenty years since I have seen a specimen here. Formerly, it was *the* rat at Camlogie—six miles from the Glomach Fall, and twenty-five from Guisachan.'

The *New Statistical Account* speaks of it as at one time common in the parish of Ruthven, but as extirpated by the Brown or Norway Rat (*loc. cit.* vol. xiii. p. 249).

Mr. Maclennan, lately forester in Glen Fannich deer-forest, now deceased, wrote to us that 'the last Black House-Rat of which I have heard was one which was killed five years ago (say 1875) by a fellow-servant of my own, in a potato-field in The Nest of Fannich.'[1]

Mr. Burgess, factor in Glen Urquhart, writing to us, 9/iii/1880, says:—'Cannot learn of one having been seen since October 1876, in Glen Urquhart or Glenmoriston.'

Mr. R. Thomson writes:—'During the seventeenth and eighteenth centuries the Black Rat was predominant all over the country. Only the oldest inhabitants now remember to have seen a few individuals in their earlier days. As it never burrowed, like the Brown Rat, the discontinuance of all the old-fashioned straw-thatched houses of the above period has entirely done away with its favourite haunts. We doubt if there exists in the present day a solitary specimen of the ancient breed in Nairnshire, or any of the neighbouring counties.'

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[1] Mr. Maclennan was a good observer, accurate and careful.

Mr. Anderson, farmer, Drachlaw, near Turriff, on the river Deveron, told us he could well remember, about forty years ago—say 1853—when the Black House-Rat swarmed in his house, and they used to banish them by singeing one, rubbing it with pitch, and turning it loose in the upper parts of the house. He assured us they were infinitely more destructive than the Brown or Norwegian Rat. On one occasion at Drachlaw, Mr. Anderson and his servants killed thirty-seven of the true old Black Rat, as he has just informed us—*viva voce.*

Mus decumanus, *Pall.* **Brown Rat.**

Abundant everywhere. We have no record of the black form of this species in our area; nor are we aware that this occurs anywhere on the mainland of Scotland.

Writing in 1846, at page 70 of his *Wild Sports of the Highlands*, St. John remarks that these creatures abound in all the small towns of this country, especially when herring-curing is carried on, that they had been seen migrating in large companies from these towns to the country, and that they had then nearly extirpated the much less vile race of British rats.

Now, in 1775, Lachlan Shaw wrote that he had never seen any rats in Strathspey or Badenoch, 'although,' he adds, 'I have lived long in these countries' (*History of Moray*, p. 160).

The *O.S.A.* is silent.

Dr. Gordon, in his *Fauna of Moray*, 1889 edition, p. 14, tells us this invader was first seen upon the coast thirty years previous to 1844, and since then it has moved inland, fast closing in upon the north foot of the Grampian range.'

The *New Statistical Account* has a foot-note at p. 12, parish of Duthil, vol. xiii., as follows:—'Since the above was written, rats have become very numerous.' And it is also spoken of as having been introduced into the parish of Tain 'within the last few years' (*vide* p. 285).

The method followed to extirpate Rats, which is mentioned by MacGillivray and Jesse as having been tried successfully in the slaughter-houses of Paris, has always struck us as the most reliable method yet imagined, and we think it might with advantage be employed at the present day at almost any farm-steading in the country. By forming a properly made rat-pit of cement, allowing free ingress and egress, and feeding heavily for a time, then suddenly closing up the various passages, immense destruction can be done. In this way Mr. Jesse relates that M. Dusaursois destroyed 16,050 rats in the space of a month, and in one night's massacre the dead amounted to 2650 (see MacGillivray's *History of British Quadrupeds*, Naturalist's Library, p. 247).

'This bold marauder,' writes Mr. R. Thomson, 'whose hand has been against every man, and every man's hand against him, etc. . . . has generally got the credit of exterminating his smaller and less powerful relative—the Black Rat.'

The general belief and expressed opinion in our district is, that the Brown Rat first made its appearance on or near the coast at Banff, and at others of the coast towns of the Moray Firth, and rapidly spread inland.

Sub-family *ARVICOLINÆ.*

Arvicola agrestis, *De Selys.* Common Field Vole.

This is a common species everywhere in our area, though there has been no plague of them, to our knowledge, as has recently been the case in the south of Scotland. It may be that owls are more numerous and undisturbed; at least we find that keepers are less inclined to kill these birds now than formerly. That the result of the ordinary increase of micro-mammalia, or an abnormal increase owing to dry and suitable breeding seasons, causes a corresponding increase of owls, we have abundant evidence in the history of the plague of 1892, as written by Mr. Adair in the *Annals of Scottish Natural History.* A naked variety was caught at Elgin in 1850 (*auct.* Rev. G. Gordon, *Zoologist*, 1850, p. 2763).

Amongst the earliest records we have of the Field Vole is one in MS. by James Hoy in a copy of Berkenhout's *Outlines of the Natural*

History of Great Britain and Ireland,[1] for a copy of which notes as far as they relate to the vertebrate fauna of our present area we are indebted to Mr. George Thomson of Mains of Gollochy, Port Gordon, the possessor of the original.[2]

The said note stands thus:—'One got at Gordon Castle, *M. terrestris*—length to tail, 6½ inches; tail, 3½ inches. Some hairs extend beyond the end of the tail, of the same colour with the rest. Back rusty black, belly ash colour. Head large, roundish, without a snout, but *cum ore gibbo* (Lin. ?); small eyes, ears covered with fur; no *duriculo* (*sic*) appear; a small claw for a thumb on the forefoot. It agrees well with Linnæus' character of it. Pennant seems to take no notice of it, if he does not reckon it the same with the *M. amphibius*.'[3]

Of the Vole Mr. Thomson of Ferness says:—'This species is rather more plentiful in the district than could be desired, especially when we consider the ravages which are being inflicted through its agency in some of the border counties. It usually burrows near the surface of the ground, and often finds a retreat for itself in the excavations of some other animal.'

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[1] The late Mr. Hoy was house-steward, or 'major-domo,' at Gordon Castle. Most of his time there was spent under Duke Alexander, who died 1827. He continued at the Castle during Duke George's time, by whose duchess he was much esteemed. . . . He had a great turn for medicines, astronomy, and general natural history, in all which matters he had a strong sympathiser in Duke Alexander, who was one who could fully know and appreciate Mr. Hoy's qualities in these departments. Some years ago the Duke of Richmond and Gordon presented to the (Edinburgh) Scottish Meteorological Society one of its most valued records of the Moray seasons, long kept by Mr. Hoy at the Castle—the earliest one of any authority that they possess. Mr. Hoy must have come from the south of Scotland, as he retained its accent, as I well remember, to the end.' We are much indebted to Dr. Gordon for the above precise notes regarding Mr. Hoy, the whole of whose MS. notes (in copy) are before us, viz., *Notes by the late Mr. Hoy, Gordon Castle*, attached to a work, *Outlines of the Natural History of Great Britain and Ireland*, by John Berkenhout, M.D., London, MDCCLXIX.

[2] Mr. George Thomson, whose acquaintance we had the pleasure of making in August 1893, owns a very extensive and most interesting collection of Scotch antiquities, fossil fishes of the Tynet Burn, ancient weapons of warfare, and also mineralogical and geological specimens. He is interested in all matters connected with the natural history and antiquities of his district. We feel greatly indebted to him for his courteous and kind assistance in this and in other matters.

[3] These are the only notes on Mammals in Mr. Hoy's MS., except upon the allied species *A. amphibia* (*infra*), but there is a wealth of notes upon the birds.

Mr. Eagle-Clarke has obtained specimens of this species from the late Dr. Gordon, which are now in the Museum of Science and Art, Edinburgh, as also specimens of the next mentioned.

Arvicola glareolus, *Schreb.* Red Field Vole.

At a time when the depredations of Voles have drawn the attention of special Parliamentary Commissions, we may be pardoned, perhaps, for quoting pretty fully what has been said regarding this closely allied form by the late Rev. Dr. Gordon as applicable to any large extent to the north-eastern counties of Scotland. Dr. Gordon says, in his *Fauna of Moray*, p. 15:—'This species abounds in the neighbourhood of Cawdor, where it has been known for several years'—*i.e.* at date of 1844—'to be most destructive to the newly-planted larches. No sooner are the plants put into the ground than a single night is sufficient to show the ravages, and a few days will scarcely leave a plant over whole acres but what is more or less injured. The chief object of attack at this season—December—seems to be the newly-formed bud, which they eat out with the greatest nicety, often leaving the outer scales attached like a lid, after the kernel, as it were, is gone. When the branchlets are too slender to bear the animal to the buds at their extremity they are gnawed across, and, falling to the ground, yield up their treasures an easy prey to the little robber. Mr. Black, the forester at Cawdor Castle, says when the winter sets in the stems are often denuded of their bark under the snow, and of course the plants are seriously damaged, if not killed. The injury sustained by the extraction of so many of the buds, and by the lopping off of so many of the branches, and most frequently the leading one, is such that many plants never recover it, but grow up cramped, bushy, and deformed, instead of the tall, straight, and handsome forms so natural to the larch.' Dr. Gordon then continues:—'In the dry, bare moors the Red Voles are seldom met with, and consequently the plants there escape. They are chiefly congregated in the large hollows which are thickly strewed with boulders, angular fragments of the subjacent rock and débris, and deeply covered with fog (mosses), decayed grass, and the tangled roots of juniper, whins, broom, and the smaller willows. Mr. Black mentions that upwards of twenty years ago he experienced the ravages of this or a similar destructive animal on the banks of the Spey about Arndilly and Boat o' Bridge. He has little doubt that it is owing to their abundance and consequent destructiveness, *and not to the nature of the soil*, that in some localities, in plantations throughout the north of Scotland, it has been found impossible to raise the larch.'

Mr. W. Taylor writes much in the same strain. The species is common in the neighbourhood of Lhanbryde, and in specimens captured in December and January the stomachs were full of fragrant larch.

Arvicola amphibia, *L.* **Water Vole.**

The Water Vole occurs all through our present area, the black variety predominating, and both varieties have been procured from several localities and forwarded to Mr. Eagle-Clarke for the Edinburgh Museum by Dr. Gordon. The black variety was sent by Hinxman, who obtained it on the Avon, in Banffshire. We constantly see both varieties when fishing on the Deveron, Livet, and streams of the Carn district, as also on the banks of the Spey. Mr. R. Thomson also speaks of both varieties occurring on the Findhorn, but at Foyers Mr. Chisholm considers the black form as rather rare.

Sub-order *DUPLICIDENTATA.*

Family **LEPORIDÆ.**

Lepus europæus, *Pall.* **Common Hare.**

Common and widely distributed, as far north as Helmsdale, though fast decreasing under the Ground Game Act. The Brown Hare, as it is usually called in the Highlands, follows cultivation far up the glens: thus it is quite a common animal at Guisachan.

Even close to a town like Inverness the Brown Hare is occasionally seen. Mr. Formby, lately one of the masters at the College, told us that he several times saw Hares in a garden adjoining the playground, and that on another occasion a Hare nearly ran between another master's legs as he was coming under the archway of the entrance.

The *O.S.A.* gives Grange parish (vol. ix. p. 581), Abernethy and Kincardine [Spey] (vol. xiii. p. 136), and Mortlach (vol. xvii. p. 418) as localities. There seems to be no remembered limit to the records of its occurrence in the Deveron valley. Mr. W. A. Brown, lately keeper at Rothiemay, says:—'Known in the district for at least seventy years.'

There was a coursing club started at Elgin about 1852; it existed for some twenty years, and Captain Dunbar-Brander was a member. At that time a Hare or two could be found in every field, and it is a capital coursing country. Now there are not Hares enough left to afford sport.

Mr. Thomson of Ferness speaks of it in the usual terms now (1893) so much in practice, thus:—'It is not now so abundant over the parish (of Ardclach) as it formerly was. This is no doubt owing to the operation of the Ground Game Act.'

Lepus variabilis, *Pallas.* Mountain Hare.

Since the *Fauna of Sutherland and Cromarty* was published in 1887, White Hares have much decreased in the Sutherland portion of our area. On some farms they have been exterminated through the working of the Ground Game Act, and in other parts they have been destroyed in the interests of the deer-stalker.

Writing us under date of October 19th, 1888, from Invergarry, Captain Ellice says:—'Hares are almost extinct, and I expect that in a year or two the eagles will finish off the remaining few. The extinction of the hares (here) has nothing to do with the Hares and Rabbits Bill. About ten years ago they swarmed here, and my uncle commenced a crusade against them. We killed about 1200 a year for two years; and then, I suppose, there was not a sufficient stock left to allow them to get up again.'

When at Guisachan and Invergarry in the spring of 1892 we did not see half-a-dozen hares during our walks on the hill, but we were informed by the keepers that they were once common, if not abundant, in those parts.

White Hares vary as to their numbers in a most wonderful manner in different years. Certainly, the presence of vermin alone cannot account for this, as vermin are persistently destroyed year by year, with the exception of the Golden Eagle. No doubt this bird does consume a large number, but still the number of Hares increases all at once! We well remember an instance of this when on the west coast of Ross-shire. In 1880-81 the number of Hares was, for the district, quite large, and only the severe winter prevented our making a considerable bag of these animals, as we could not get up the hills owing to the depth of the snow. Next season they were so scarce as to be not worth while looking for; no dead ones were seen, nor indeed does the White Hare seem to suffer directly to any great extent from hard winters. We heard that others experienced the same thing in other parts of the west coast.

Though essentially a mountain-loving species, still the White Hare has been found at times quite in the low country. We have seen it in Sutherland very low down, not half-a-mile from the sea, and St. John relates in his *Natural History of Moray*, p. 86, that on April 5th, 1853, two were killed close to Elgin, and adds that this was a very unusual occurrence. The same author has recorded it from Spynie and Covesea.

It is curious to find no record of this species in the *O.S.A.* from any parish of Banff or from the valley of the river Deveron.

South of the Great Glen an abundant species still, though possibly not quite so much so as about forty years ago. At Ballindalloch (1844) 'it is very generally remarked that this species has of late become much more numerous than formerly, and that they are now not unfrequently found on low moors where none used ever to be seen' (T. Macpherson Grant, Ballindalloch, *in lit.*).

In some seasons the White Hare breeds very early, and we saw a leveret exposed for sale in a shop-window in Inverness on the 10th of April 1885.

The Alpine Hare is very abundant along the summit ridges of the Monadhliath mountains, and indeed over all the higher mountains of Badenoch and Lochaber, the Cairngorms, and in the Carn districts. But, as Mr. R. Thomson assures us, it 'is seldom found descending below an elevation of 800 feet on any of the Findhorn watersheds.' We have seen White Hares coursed by greyhounds near the sources of the Foyers and Findhorn rivers, having climbed up from the Spey valley at Shirramore to Lochan Iain; and they were very plentiful there. 'On several occasions,' continues Mr. R. Thomson in his account of the species in his MS., 'as many as 600 have fallen in one day to the guns of a tenant's shooting party on the Cawdor moors. The White Hare is not known to burrow in this district, but in cases of emergency it will not hesitate to seek concealment in the first suitable hole, or other opening which may conveniently present itself. In ordinary cases it merely scoops a hollow, near the top of the hill, deep enough to protect the body from the passing blast.'

Lepus cuniculus, *L.* Rabbit.

Except the very highest hill-tops and the wet flow-lands there are very few places now where the Rabbit may not be found. In 1847, however, in some of the wilder districts, such as Glen Affric, they did not exist, according to Mr. Hepburn, so that their presence there now must have taken place within more recent times.

This animal, now so common in many places as to be a pest, was introduced 'many years ago to Ballindalloch, but continued very scarce until about 1829 or 1830, when their increasing numbers began to attract notice, and shortly after this the farmers thereabout were encouraged to destroy them by every means in their power' (T. Macpherson Grant, *in lit.* 1844).

The *O.S.A.* speaks of the Rabbit as occurring in Rothiemurchus and Duthil (vol. iv. p. 290), but is silent as regards the valley of the Deveron.

Captain Dunbar-Brander informs us that his father, Sir A. Dunbar of Northfield, who died an old man in 1848 (he was born about 1770), said 'that the first Rabbits seen in Moray were a pair or two on the links at Lossiemouth about 1750, and they were supposed to have escaped from a foreign vessel in the harbour' (*in lit.* 1st September 1891).

The Rabbit appears also by the *New Statistical Account* to have been introduced a few years previous to the publication of that work, in the parish of Kiltearn, and had by the latter date 'multiplied amazingly,' and similar remarks occur under the parish of Urquhart and Logie-Wester (*loc. cit.* p. 368).

At the present time the Rabbit is said to be decreasing at Delnabo, Glen Avon, on account perhaps of a too cold winter (*fide* Fraser, keeper, *ex ore*).

Mr. R. Thomson, after speaking of the original and probable introduction of the Rabbit to Britain from Spain, adds:—'It is highly probable that it was unknown in Nairnshire previous to the beginning of the present century. At Glenferness, considerable numbers, very likely escapes from domestication, are found of a variety of colours—black, brown, and more or less mixed with white.

Class 2. AVES.

Order **PASSERES.**

Family **TURDIDÆ.**

Sub-family *TURDINÆ.*

Turdus viscivorus, *L.* **Missel-Thrush.**

Local Names.—'Hielan' or 'Hillan (*i.e.* Highland) Piet'; 'Grey Chacker' in Carn District of Spey.

Resident, generally distributed, abundant, and a spreading species.

Common throughout the whole of our northern area, but has not as yet been observed at Badenloch, there being scarcely enough trees in the district to suit it. The species occurs all along the Dornoch Firth.

Hepburn,[1] when speaking of its presence in the northern districts of Inverness-shire, in 1847, says:—'Family parties of Missel-Thrushes bespoke the presence of this new and adventurous colonist.' As Selby found this species breeding in Sutherland in 1834, the bird must have been established there for at least twelve years.

The Missel-Thrush is common at Invergarry, and we observed it also at Guisachan, and Mr. Doncaster met with it in Strath Glass and Glen Affric.

In the southern portion of the Moray basin, the earliest record of its appearance is given to us by Mr. Hoy as follows:—'On February 27th and 28th, 1807, several of the *T. viscivorus* were found dead at Gordon Castle on the snow, and some of them so weak as not to be able to fly, and so were easily caught.'

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[1] 'Notes on the Quadrupeds and Birds of the Northern Districts of Inverness-shire,' by Archibald Hepburn, Esq.; *Zoologist,* February 1829, p. 2010.

Again Mr. Hoy has the note:—'On February 26th, 1818, one was shot here, and I am informed a nest of them was found last year.'

St. John[1] says it was common in his time in the autumn, haunting the grass fields for insects, or the juniper bushes and holly trees for berries, in large scattered flocks. A pair always bred in his garden near Elgin.

At the date of the *O.S.A.* there was no mention of it at all in any of the parish lists of the area. It is, however, recorded as early as 1843, when Dr. George Gordon speaks of it as abundant; and Mr. Foljambe,[2] in 1844, mentions it as breeding every year about Grant Lodge. By 1851 it had increased in numbers (*Fauna of Moray*), and St. John also speaks of it as breeding commonly.

By 1881 it became temporarily scarcer after the severe winters of 1878-79 and 1880-81, but recovered its numbers and distribution soon afterwards. We found it abundant in the nesting season all over the area by 1884-85—on the Deveron, on Speyside, and Strathspey; even at Tomintoul (1150 feet), and Dalwhinnie (1200 feet). It disappeared from the last-mentioned locality after 1879 and during 1880-81, but reappeared in or prior to 1885 as a breeding species, as observed by Mr. J. Backhouse,[3] who found a pair frequenting the plantation there. It was not, however, abundant at the higher elevations in 1885, but by 1889-90, 91, 92, was found abundant everywhere, even high up in the narrower birch-clad glens of the Carn districts about the sources of the Deveron, Spey and tributaries, Findhorn, and lower spurs of the Monadhliath Mountains, and apparently annually increasing, very large numbers having been observed in the spring and summer of 1892.

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[1] All St. John's notes of course pre-date 1854, and his *List of the Birds of Moray* date between 1847 and 1854. His letters were to and from his friends—Penrose, Cumming, Innes, etc. Nothing was omitted in Mr. D. Douglas's issues of his *Natural History and Sport in Moray*, all being printed verbatim, but Innes may have touched up a sentence occasionally, though never altering a fact (David Douglas, *in lit.* September 9, 1891). St. John lived first, after he came to Moray, at Invererne, below Forres. Afterwards he lived at South College, in Elgin—famous for its splendid fruit-gardens.

[2] Mr. Foljambe was tenant of Grant Lodge in 1844 and for some years after, and contributed many bird-notes to Dr. Gordon's *Fauna of Moray*.

[3] Mr. J. Backhouse gave us a list of the species he observed in the summer of 1890 (?) around Dalwhinnie, where he was resident for several weeks.

This increase, however, was observable as far back as our earlier records take us, as was written by Dr. Gordon in 1844. William Brown,[1] who has sent us many excellent notes, speaks of it as abundant at the present time. The extraordinary increase within the last two or three years has been almost universally taken notice of. Captain Dunbar-Brander of Pitgaveny assured us it had become most destructive to his fine gardens, especially in 1892. We doubt, indeed, if there be any other area of Scotland so heavily stocked with this assertive species as the Moray Basin, on the south shore of the Moray Firth.

In the Carn district around Glenlivet, Hinxman says it is, as yet, only thinly distributed as a nesting species, and in flocks in autumn among the rowan-trees. Just according to the bareness or the wooded character of the different areas is its rareness or abundance, but its nest has been known to be placed far above the birch-wood, on the top of a stone wall,[2] just as we have also found Fieldfares nesting at times, on the fjelds of Norway, upon the ledge of a bare rock.

By 1893, the Missel-Thrush had become even more abundant, and is decidedly, at this time, pushing its advance higher and higher up the valleys, and becoming quite a feature amongst the birch-woods, over 1000 feet above the sea. So much is this the case that quite recently it has obtained a local name from the farmers and inhabitants of the Carn District of Spey. The Ring Ouzel is called the 'Black Chacker,' and the Missel-Thrush now receives the name—in contradistinction—of the 'Grey Chacker.' The natives also clearly distinguish between the nesting habits of the two species, the Black Chacker building its nest *low down* and the Grey Chacker *high up* in the birch-trees. Curiously, it has not yet come to be looked upon as a destructive species in the higher Carn districts—certainly not so much so as the Ring-Ouzel, but up to this time seems to have held its destructive qualities in reserve until it visits the lower gardens of the Laigh of Moray.

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[1] Mr. William Brown, birdstuffer, Forres, has taken great pains to send us information, and we desire to record our thanks to him for the conciseness of his notes, which we frequently quote. Were all notes we received as concise and to the point as his, an infinitude of time and 'boiling down' would have been saved. We are primarily indebted to Dr. Gordon for recommending his correspondence, and we have since then spent several days in his company on the coasts and sand-dunes near Forres.

[2] In Stirlingshire, by the late Dr. W. Leslie of Falkirk, whose notes and collections passed into our hands after his death.

But in 1893, we ourselves observed, in addition to its phenomenal increase amongst the higher levels, that Missel Thrushes went early up from the birch groves to still higher levels to feed upon the abnormally early mountain berries; and Hinxman found them in flocks as early as the end of June, high up on the mountains above Inchrory, where several pairs were breeding at an elevation of 1350 feet.[1]

On the other hand, in the lower grounds, and as observed by ourselves near Fochabers, the Missel-Thrush was not so abundant in the early part of August. No doubt it was flocking, as already indicated, to feed upon the mountain berries, the garden fruits of the Laigh having been already over there from a month to six weeks before their usual time.

Amongst a considerable flock of Missel-Thrushes seen by us—when accompanied by Dr. Gordon, on a visit to the old castle of Auchendoun, in Glen Fiddich—we saw a creamy-tinted, almost albino, bird of the same species: this was upon the 31st July 1893.

Turdus musicus, *L.* Song-Thrush.

Local Names.—Mavis, Mavie.

Resident, generally distributed, abundant; less abundant, however, now than the Missel-Thrush. Very scarce in winter. Susceptible to severe and long-continued storms.

The Thrush is a common species throughout the north of our area during spring and until late autumn, after which they become very much scarcer. Even in the neighbourhood of Inverness, which is warm and sheltered, this is the case. When the young are hatched and flying they take more to the fields, reappearing the first fine days of spring about the houses. In summer they ascend most of the glens, and we have notes of them from Glen Cannich, Glen Affric, Guisachan, and Invergarry.

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[1] All Mr. Hinxman's and Mr. Eagle-Clarke's altitudinal observations in 1893 were fixed by aneroid, and these gentlemen are doing excellent work in the direction of fixing altitudinal records of our breeding species. How far such a record of altitudes may prove of permanent faunal value remains to be seen, as it must be remembered the season of 1893 was quite abnormal, and all progress was quite six weeks ahead of normal years. Hinxman, during his residence in Strathspey, Glenavon, and Glenlivet, kept careful notes of all the species he observed there between 1891 and 1894, and has kindly intrusted us with them all.

Notes of this species are not abundant in the *O.S.A.*, and, indeed, the parish of Mortlach is the only locality with a positive record—most of which parish is on the watershed of Spey, but also a small portion on Deveron. It was common in Edward's time, but was supposed by him, even then, to be getting gradually superseded by the Missel-Thrush.

Dr. Gordon speaks of it as abundant in plantations as long ago as 1843, but says nothing of its increase in the reprint of his *Fauna* in 1889.

In 1881 Song-Thrushes suffered a severe loss in numbers—or, otherwise, in the extent of their distributional area,—on account of the severe winters of 1878-79, 1879-80,[1] and 1880-81. Missel Thrushes suffered also, but have apparently recovered more rapidly, and now outnumber this species over the whole Moray basin. A decrease of the latter and increase of the larger species was however taken notice of, as we have seen, as early as the time of Edward's notes, in the neighbourhood of Banff and within the Deveron watershed, so we may perhaps look upon the Missel Thrush as the more assertive species. After the severe winters above mentioned, the Song-Thrush entirely disappeared from many localities, and generally from the areas exposed to the east, and retreated from the upper Carn districts; and even by 1882 it was common only in the more sheltered and heavily-timbered valleys and tracts, such as along the main valley of the Spey through its lower reaches, and the deep wooded valleys of Spey's southern tributaries.

By 1884 it had once more become abundant at most of its old haunts, even high up the valleys of the Carn districts and north of Spey, among the foot-hills and carns surrounding the upper waters of Spey's northern tributaries, and has been reported as again on the increase even as high up as upper Glenlivet, at elevations of 1160 or more feet above the sea. Down to date of 1894 it has steadily been extending its altitudinal range among the hills and minor stream-sides, even above the line of the highest birch-woods, but being of more retiring habits in the nesting-season, is not so conspicuous a species as its larger congener.

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[1] The winter of 1879-80 was short, sharp, sudden, and very severe while it lasted, and told severely, even in its short course, upon several forms of bird-life, as our Journals and Natural History Records show.

It has been reported to us as not so abundant on the eastern side of the watershed, and as more local, which is naturally to be expected, if we look at the bare and cold character of the north-east of 'Dee.'

An unusual increase of Thrushes appears to have taken place in the spring and summer of 1891, as indeed also seems to have been the case over a large part of Scotland, noticeably in the central districts of 'Forth and Clyde,' whilst a great scarcity was reported from the south of England. This pulsation of the distributional 'waves' was, with little doubt, partly owing to the severe blizzard which devastated the south of England in March of that year.

We find its distribution universal,[1] but by the month of July many must have commenced migration; or otherwise, their usual skulking habits become intensified after the young leave the nests. However that may be, we observe fewer birds, old or young, towards the third week in July than earlier in the season.

In 1893 the Song-Thrush was found ascending earlier in the season to feed upon the unusually early ripe mountain berries, as high as 3700 feet above the sea during the hot weather in the end of June, although not found nesting at such an altitude (Hinxman's notes from Inchrory, Glen Avon, 1893).

Turdus iliacus, *L.* Redwing.

Local Names.—Local names for Missel-Thrush, Redwing, and Fieldfare are not generally separated, but are usually united under the name 'Hielan' or 'Hillan Piets.'

A common autumn migrant, less frequent in the middle of winter and early spring than during the two seasons of migration. On the Dornoch Firth, Mr. Jennings[2] tells us, the Redwing is commonest in hard weather; but then these birds are driven out of their usual inland haunts to seek their food on the 'ebb.'

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[1] When we speak of the distribution of any species being universal, we desire to convey the fact that we have observed it at all the localities, or nearly all, that we have visited or have records from.

[2] Mr. Jennings, who has for a considerable number of years been wildfowl-shooting on the Dornoch Firth.

South of Inverness, the Redwing arrives about the second week in October in the Carn districts, and a little earlier in the lower valleys; it occurs in flocks; but its numbers vary with the seasons. It is not so abundant in the east of our area as the Fieldfare, and departs in the beginning of May.

Scarcity of records in the *O.S.A.* may partly be accounted for by lack of minute observation; besides, it is a shy and vigilant bird, except when hard pressed by frost and snow. It is not recorded even in Rev. J. Smith's list,[1] and Edward records it as a winter visitor 'not so abundant as the Fieldfare.'

[We were assured by a very intelligent ghillie—Murdoch Matheson—that the Redwing once bred at Invergarry. Of this we have no proof now; still, such reputed instances of their doing so seem to us worthy of record as they are given obviously without any intention of deceiving; the pity is that it is so difficult to prove or disprove them.]

Turdus pilaris, *L.* Fieldfare.

A winter visitant, arriving in October and November, in flocks of smaller or larger proportions according to the season, and departing in April, and in some years as late as May (1892). In the north of our area the Fieldfare is most commonly observed in autumn, rarely in winter. At times flocks are seen again in the spring on their return north.

Scarcity of records in the *O.S.A.* may be put down partly to lack of able observation and to the confusion which exists as to its recognised name in the minds of the natives, but also, no doubt, to its comparative scarcity anywhere to the west of Troup Head, or to the irregularity of its advents, as compared with the districts of north-east Aberdeenshire. The only record for all 'Moray' in the *O.S.A.* is given under the parish of Kirkhill, on the north-west side of the Caledonian Canal. Edward mentions it, however, as occurring some years in '1000s' (*sic*), and Rev. J. Smith also includes it in his lists in the *New Statistical Account.* It is said not to occur every winter, nor in certain localities, and we are inclined to favour this statement. Hinxman quotes it as 'generally arriving a few days later than the Redwing, and stays till the middle of May,' in the Carn District of Spey. On the other hand, great scarcity of Fieldfares was reported during the severe winter of 1879-80 by Dr. Innes. It is spoken of as an increasing migrant about Forres by Mr. Brown, 'leaving in May.' As already stated, they are unusually late of departure from the neighbourhood of Rothiemay, where a flock of at least a hundred were seen in May by our friend, Mr. Charles H. Alston, and the gamekeeper there, Mr. W. Brown.

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[1] As many of our common birds are omitted from Rev. James Smith's lists, we think it right to say here, once and for all, that the late Dr. Gordon told us, 'that any positive data given by the Rev. J. Smith, may be clearly depended upon.' In many cases the absence of record can easily be accounted for, as his list refers mainly to the lowland districts around the county town of Banff and adjoining parishes. The Rev. James Smith was first rector of Banff Academy, and afterwards minister of Monquhitter parish.

All the Thrushes suffered severely around Forres, especially Redwings, during the severe winter of 1878-79.

Turdus merula, *L.* Blackbird.

Local Names.—Blackie, Blackie-Bird.

Abundant and more resident than the Thrush. In the end of October and beginning of November numbers of Blackbirds visit our lawn in Inverness, but it is a rare thing to see a Thrush. They however leave us, like the Thrush, very shortly after the breeding season is over, but around Inverness appear again in large numbers at the time of migration, in the end of October and beginning of November.

Mr. Baillie[1] writes us that both Thrushes and Blackbirds about Brora nest higher in trees than formerly, probably from being more molested by cats and birds'-nesting boys.

Varieties of the Blackbird occur here, though perhaps not so commonly as farther south. Captain Ellice informs us that there was one at Invergarry during the summer of 1885 with a white tail.

South of Inverness this species is resident, generally distributed and common, but not so abundant as the Common Thrush, and less partial to high altitudes, or areas apart from inhabited places. We find our record at most places thus:—'not to be compared in numbers with those of *T. musicus*.' It is decidedly most numerous among the lower valleys, such as around Aberlour on Spey (1884), and the Laigh of Moray, but becomes much rarer or more difficult to observe by July. Thus in July 1891 we only observed one bird during a week spent at Carr Bridge on the Dulnan river, and at Dalwhinnie only one pair frequented the plantation, which was constantly searched by Mr. J. Backhouse, and other observers send us similar accounts of their scarcity as compared with that of the Song-Thrush.

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[1] Mr. Baillie is a retired schoolmaster, now residing near Brora, and is an enthusiastic collector, more especially of the smaller Mollusca.

Blackbirds have been accused of sucking eggs, and certain notes in our possession relating to Fieldfares in colonies on the High Fjeld birch-woods of Norway, lead us to suspect that there may be truth in the accusation. When collecting there we had good cause to believe that Fieldfares at all events were guilty of destroying one another's property—or their own, if their nests had been disturbed.

Turdus torquatus, *L.* Ring-Ouzel.

Local Name.—Black Chacker.

In the extreme north of our area the Ring-Ouzel, although widely distributed, is not common, and we do not remember having seen it in the neighbourhood of Badenloch, though they inhabit the lower parts of the Helmsdale strath. Jennings says it is common about Tain, and it has a place in all our local lists.

It is common in Strath Glass and Glen Affric (Hepburn), but we did not see nor hear it in the Guisachan neighbourhood. There are few localities, however, that do not contain a pair or two, if these are suited to their habits. In Glen Urquhart, where, according to Mr. Craig,[1] they are abundant, a pair of Ring-Ouzels was seen as late (or as early ?) as January; the winter in that year (1881-82) was a very mild one. About Invergarry they occur in fair numbers on the hills.

The rough and stony slopes of Abriachan are a great haunt of these birds, as is recorded by an anonymous writer in the *Northern Chronicle* and also by Mr. Craig.

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[1] A. Craig, Esq., wrote a paper on the 'Birds of Glen Urquhart,' in the *Trans.* of the Royal Physical Soc. of Edinburgh for 1882; and also five papers in the *Northern Chronicle* on the Scenery and Bird Life of the same district.

In the portions of our area south of Inverness it is a summer visitor, and very common, and occurs in the Carn districts, *i.e.* up to an elevation of about 2000 feet, but is rare in the lower valleys. Perhaps its most favourite zone for nesting purposes lies between 1000 and 1600 feet. Nowhere perhaps in Scotland is the Ring-Ouzel more plentiful than in these Carn districts of Moray or among the foot-hills of the Cairngorms and Monadhliath Mountains. But above 1000 feet the species may be said to be universally abundant, becoming more conspicuous as the season advances, and coming lower down as berries ripen in the hill-farm gardens. They arrive around Elgin on their way to the hills as early as March—Dr. Gordon gives the date as 22nd (*Zool.* 1850). In July, before leaving, they feed greedily on juniper berries, and there is very little doubt that the abundance of juniper all through the light gravel soil of Spey and Findhorn offers these birds exceptional inducements to populate the area. We observed them very commonly around Tomatin,[1] on the Upper Findhorn, in July 1891—the Gaelic name Tomatin meaning, as we were assured, the Hill of the Junipers—but all over the area Ring-Ouzels are almost universally abundant where nesting and feeding conditions are favourable. They are rarely seen about Forres, no doubt passing on swiftly on migration. Mr. O. A. J. Lee,[2] however, has seen the nest in a tuft of grass on a bank among the sandhills in that locality.

Around the high levels of Tomintoul and Dalwhinnie almost every stony patch on the hillsides up to the 1600 feet elevation may be said to be frequented by a pair, and both up and down the valley of the Truim, 'and—by the 20th of July—the plantations at Dalwhinnie swarmed with the young, but by the following day, apparently, they had all moved on migration' (J. Backhouse). It is considered rare along Strathspey, but commoner in the higher reaches of Speyside and Badenoch. If it migrates up or down the Spey valley, it must do so greatly by night. In its autumn migration it doubtless passes, as do other land species, over the watersheds to the south and south-west. An old correspondent of ours[1] took several nests of Ring-Ouzels for us many years ago up amongst the head-waters of Avon and the Fergie Burn, all of which were placed in rocks. It is abundant high up the river Nethy, but less common in the great pine forests of Abernethy or Rothiemurchus, preferring opener ground above the pine growth.

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[1] Tomatin is a name of Gaelic origin signifying 'the hill of the Junipers,' *aieteil* and *aiteal* being Argyllshire Gaelic, as understood by Lachlan M'Bean, Esq. of Tomatin, and the local name at Tomatin being *Aietein*. Certainly the abundance and luxuriance of the junipers all along the Findhorn valley is remarkable—in fact quite a feature of the dry drifts of gravel and shingle found over nearly the whole drift portions of our area south of Inverness.

[2] O. A. J. Lee, Esq., resided at Kincorth House near Forres, during the summer and autumn of 1887, and we are indebted to him for many valuable and original notes, as well as a series of lovely photographs of birds' nests and eggs.

By 1893 a most decided increase in the population of this species was evident upon the braes of the Upper Deveron, consequent, we believe, upon the phenomenally early season. In previous years, when residing at Lower Cabrach, that part of the valley was not universally visited or frequented by the 'Black Chacker' before the declining week of July or beginning of August, and few were seen much below the level of 950 feet. But in 1893, even in June, they were daily seen in unusual numbers visiting the gardens in the early mornings; and later, viz., by the 15th July, both old and young visited the gardens during the whole day.

The 'Black Chacker' is a well-recognised bird all over the Carn district, and is freely spoken of as a pest in the 'farm-toon' gardens. It nests in low bushes, especially juniper, in old walls, steep banks, or heather-crowned rocks, but seldom at any great height above the ground, except when in a cliff face, and in this respect, as recognised by the natives, differs from its congener, the Missel-Thrush or 'Grey Chacker,' which generally builds its nest close to the stems of the birch-trees, and at some distance above the level of the ground.

Hinxman found it nesting very abundantly near Inchrory in Glen Avon up to 1750 feet above the sea, but he doubts if they nest higher than 2000 feet.

Saxicola œnanthe (*L.*). Common Wheatear.

Local Names.—Fallowchat, Chackert, Stonechat, Chatterer.

This is a very abundant summer visitant, and stays perhaps longer with us than any other summer migrant. The species seems equally at home on the wildest hills as on the lower grounds, and is perhaps most numerous where the loose stone dykes divide some 'park' (as fields are called in the Highlands) from the road. They breed from the middle of April to as late as the middle of July, and, even in the north, have been observed as early as March 27 on the Dornoch Firth.

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[1] Farquhar Maclennan, who first collected with us in Sutherland, and again in Gaick; was afterwards in the service of the late Campbell Macpherson-Grant, Esq. of Drumduan, and, amongst other duties, attended to the aviary there.

South of Inverness the Wheatear is somewhat local, yet well distributed both at various elevations in the valleys and on the hills. Edward says it arrives first *on the coast*: possibly it may, but we are inclined to doubt it. Again the *O.S.A.* is almost silent about this very common species, and only one parish, Kirkhill near Inverness, is credited with it positively. Dr. Gordon, in 1844, speaks of it as a regular and common summer visitor, appearing generally about the first week in April; and Dr. Wilson of Huntly testifies to the punctuality of its advent. Brown of Forres says:—'On arrival, betakes itself to sandy downs, pastures, and stony slopes, both on the coast and in the interior.' We ourselves have observed its appearance in many seasons and in certain localities to date a good deal later, even so late as into May.

On the lower levels near the sea, the Wheatear nests deep under ground in the rabbit-holes of the sand-dunes. Their numbers vary in different years, and their distribution in the nesting season extends from the rabbit-warrens of the coast up to nearly the summits of the highest mountains. In 1893, Hinxman found a few 'nearly to the tops of the mountains,' around the head waters of Avon.

Pratincola rubetra (*L.*). Whinchat.

Local Names.—Fern-chackart, Whin-chackart.

The Whinchat is a widely distributed and common summer visitor, and we have observed them, or had them reported to us as occurring, up every strath in the north of our area, from Badenloch southwards as far as Guisachan and Invergarry. Hepburn in 1846 found them in Glen Affric, than which there can be no wilder spot.

Though really a summer visitant, St. John says that he has occasionally seen the Whinchat in the winter in the neighbourhood of Forres.

South of Inverness the Whinchat is common, but not universally distributed. Edward records it from Banffshire, but there are no specimens in the Banff Museum.[1] It is marked as common in Smith's lists.

In 1844 it was observed near Aberlour, where it has been since frequently seen by us. Norman[2] did not consider it abundant near Forres about 1870, but there are plenty of records of it later, at or near this place.

We have ourselves met with it all over the area, in suitable places, as high up the Deveron as Glass and Beldornie or Mid-Deveron, and again in Upper Deveron at Ardwell and Bridge End, abundantly, in August 1892, although the numbers seen would not, perhaps, represent more than about a dozen pairs of nesting birds. Similarly, at Rothiemay, numbers were seen in July perching on reed stems in cornfields, on thistles and the like; they were extremely local and numerous, but would not represent a large number of nesting pairs. They shift their haunts up and down a valley, and are easily influenced by changes going on from year to year in the farming and land improvements of any district.

The Whinchat arrives near Forres in April and departs in September, and is found chiefly in hilly upland parts, but also—says Brown of Forres—'in the lower tracts of the Laigh of Moray and similar situations, which are overgrown with shrubs and low scrub.' It is found as high up as Dalwhinnie, Tomintoul, and Upper Cabrach of Deveron, and on Findhorn above Tomatin. At all places the species is, of course, more noticeable late in the summer or early autumn, when the old and young of the year flock together. The numbers of almost any species of bird seen in the end of July or August, or beginning of the migrating season, are apt to give exaggerated ideas of the number of nesting pairs in any given district; and *only an intimate acquaintance with the bird-life of each district at different seasons* can enable one to generalise as to abundance or scarcity as a breeding species, of each kind met with.

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[1] It should be remembered that Edward twice sold his collections, and that it is now almost hopeless to endeavour to trace his many specimens which are mentioned. This was more his misfortune than his fault, though we cannot but regret that he did not label all his specimens with localities and dates.

[2] Mr. George Norman was principally distinguished as an entomologist, and contributed much valuable work upon the district to *The Entomologist* from 1870 onwards. Mr. Norman was the younger son of a good Yorkshire family; he came to stay at Forres Hydropathic, and for a good many years made it his headquarters. He died about 1885. We are indebted to Mr. G. W. Anderson of Forres for the above particulars. He possesses some of the late Mr. Norman's unpublished MSS., which we have had the pleasure of seeing.

In 1893, Hinxman reported it as not very abundant around Inchrory in Glen Avon, and none were observed higher up than that locality, which is 1350 feet above the sea.

Pratincola rubicola (*L.*). Stonechat.

A resident species, nowhere abundant, local, but very widely distributed, pairs being found in almost every part of our area north of the Great Glen, as at Glen Cannich, Strath Glass, Invergarry. We have observed these birds on the coast-line in winter, probably driven by the storm from some of the high-lying glens. In 1892 Mr. Baillie says the Stonechat (? Whinchat) was not seen about Brora and neighbourhood.

South of Inverness the Stonechat is much more local than the last species, and it frequents much the same localities in winter as in summer. The probability is that some—probably the young of the year—are migratory, or partially so. The old birds usually remain at the nesting sites or in close proximity to them.

The species is common—comparatively—in Glenlivet, Glen Avon, and parts of Abernethy (Hinxman). It is local on Upper Findhorn, where only one pair was seen in July 1891. Near Findhorn Bridge, Tomatin, during a week we were resident there, as also in many other parts of the district, only single pairs were observed. It was not considered common near Forres by Norman in 1870; and records of it on the Deveron valley down to Banff are not abundant, though Dr. J. O. Wilson seemed to consider it 'not uncommon where there is stony ground with whins,' near Huntly in 1888.

Brown of Forres speaks of it in his carefully compressed notes as 'common, but not (he thinks) abundant: resorts to heathy and hilly pastures, overgrown with furze, juniper, and other low shrubs.' We ourselves found it rarely on Lower Deveron, a pair or two frequenting the same spots for three successive seasons, 1890-92. We have also identified it in one place over the watershed in the Ythan valley ('Dee').

Ruticilla phœnicurus (*L.*). Redstart.

A summer visitant, and although found throughout all the glens and straths in the northern part of our area it does not appear to be increasing; perhaps the old birch woods in which it so much delights in the far north are already sufficiently populated. It is irregular in its appearance; not one was seen about Brora in 1890 or 1892, as our correspondent Mr. Baillie informs us. Mr. Jennings said that in the neighbourhood of Tain they were rare; he only observed them in one year, 1885 or 1886, when two pairs nested near there, and both nests were found.

Although a widely distributed summer species, the Redstart is rather local, and not particularly abundant in the neighbourhood of Inverness, as the late Dr. Aitken[1] informed us, and this is our opinion also. It is common around Invergarry and Glen Affric. As early as 1847 Hepburn observed the Redstart about Loch Bennavian, in Strath Glass, probably the first record of its occurrence from there. Mr. Doncaster says it is very abundant in lower Glen Cannich. At Achnagairn, near Beauly, Major Cameron informed us that Redstarts were once common there, but that now they are scarce.

When St. John wrote his *Natural History of Moray* he considered the Redstart a rare bird (1844-52). Now it is, if not actually abundant, at least widely distributed through the whole of our area, going far up the wild glens wherever old birch-trees exist, or the locality is otherwise suitable.

Whilst apparently not yet increasing to the north of Inverness, it has been rapidly spreading in the southern portion of late years, and apparently coming in great 'waves.'

In 1844—as we are told in Dr. Gordon's *Fauna of Moray*[2]—'An interesting ADDITION is made to our Fauna by Mr. Foljambe, who observed it remaining throughout the summers of 1834-5 and 1838, at Grant Lodge near Elgin, where it annually brought out its young.' Dr. Gordon then adds:—'It is not known to have been met with elsewhere in Scotland north of the Grampians. Dumfriesshire has been recorded as a locality for it, and this is not the only species said to be confined in Scotland to the counties of Dumfries and Elgin.' We consider the remark quite deserving of reproduction and accentuation.

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[1] Dr. Aitken, manager of the Inverness District Asylum, who made the remarks in a paper read before the Inverness Field Club, died in 1892.

[2] We quote often the later edition of the *Fauna of Moray*, but desire to say here that it had been set up in type without the late Dr. Gordon hearing of it at the time, and consequently it is not so full or correct as it otherwise would have been. We have, when quoting it, however, in all important cases had the records verified by correspondence with Dr. Gordon. It had been lent for the purpose of another local paper, and had been put in type and printed off without a final revise by the author.

Norman considered it as 'not rare,' and noted it as observed by him at Ferness near Forres.[1] It has evidently been for long a summer visitant, but fluctuating considerably in numbers one year with another until quite of late years. However common it may have been for many years back, one thing seems perfectly certain, and that is, in 1891 enormous numbers poured into the Spey valley and occupied every vantage-point well up to the higher valleys of the Carn districts and upper watersheds of even the Findhorn. A comparative scarcity, however, was locally observed at and around Kingussie. Sites never occupied before were taken possession of high up the Deveron, Avon, and southern tributaries of Spey, whilst the great old forests of Dulnan and the wooded tracts generally were literally crowded with Redstarts. Indeed, a regular colonising 'wave' seems to have invaded Speyside and Strathspey in 1891. We think the fact is extremely interesting if taken in connection with the appearance of the same species as recorded in our volume on Argyll, as invading the northern parts of that area in 1890 (*Fauna of Argyll and the Inner Hebrides*, p. 57, *q.v.*). Nor is the observation made by ourselves alone, but is also testified to by Hinxman, who has been three years resident in the service of the Geological Survey of Scotland in the Carn districts of Glenlivet and Avon, and who, in his reports to us on the bird-life, dwells at some length upon the surprising influx of Redstarts there. In that year we met with Redstarts high up upon the sparsely wooded ridges of the watersheds, at some 1200 to 1400 feet elevation, far up among the scaurs and 'slocks' and ravines of the hills, and down upon the lower, deeply-wooded plains, especially amongst the piles of freshly cut pine branches and thinnings, and by the moorland edges of the forty-year-old pine woods. On the burned ground also of the Crannach Wood, where they have existed for many summers, back certainly as long as St. John's time or longer, they were remarkably abundant. But in 1892 almost a startling decrease was observed and commented upon both by Harvie-Brown on Speyside, and by Hinxman; on the Deveron, where they were abundant in 1891, few were to be seen, and Harvie-Brown spent all May, June, July, and part of August in the same localities as in 1891. It is certain that great fluctuations year by year take place in their numbers.

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[1] Ferness is on the Findhorn valley, thirteen miles from Forres.

We find that during a residence in May 1884 at Aberlour-on-Spey, none were observed there by us, though one was seen by Mr. John Young[1] when staying with our party. But, on the other hand, as long ago as 1881 we found the Redstart common all along the side of Loch Errochd, and over the adjoining high-lying district. In 1885 only one was seen by us at Aberlour, but in Abernethy woods it appeared to be somewhat commoner that season, and was remarked upon by resident natives. The line of its extension is, we think, thus fairly accurately traced; and if we take Scotland generally we find its numbers greater west of the backbone of Scotland, and less along the east coasts north of Forth as far as Dee. We have entered into details, as we consider this extension illustrative of certain peculiarities in the migration and distribution of species quite worthy of such lengthened remarks, and even of the few additional notes which follow.

In 1885 a pair bred close to the hotel at Dalwhinnie in a large old mountain ash—the same tree where, as we will relate further on, a cock Capercaillie was shot. In Upper Nethy valley, among the old pines and alders which fringe the river-banks, it has been known for years, but not as a common species, and at the present day, and in 1891, was not much more abundant than previously; and no great increase was observed by the resident keepers there in 1891. Thus it would appear that the vanguard of the great wave pressed down the main Spey valley, but in some of the valleys at least had not pressure enough upon it to flood the adjoining areas uniformly. Where checked, as it would be at narrower defiles, such as Upper and Lower Craigellachie and above Aberlour, the force of the flow would be concentrated and pass the entrances of the side valleys, where these were narrow and partially concealed, which in great measure would account for the populating of the upper waters of the tributaries which join the main stream below these points. Congestion *at* these points would result in expansion *below* them.

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[1] John Young, Esq., M.B.O.U., to whom we are indebted for numerous notes and lists of species observed during excursions made by him within the limits of our district, as well as elsewhere in Scotland.

In 1890 it would appear to have been very abundant indeed in Upper Badenoch, as related to us by our friend Mr. Charles H. Alston, who was residing there. He wrote of it in a list of the birds which were observed there by himself and his son :—'Breeding in large numbers; one of the commonest birds, and noticed considerably more than 1200 feet above sea-level.' We think the note a most interesting link in our chain of evidence as to the direction in which or from whence this sudden invasion took place. Shortly to recapitulate :—First, Mr. Arthur H. Macpherson noted the 'extraordinary number of Redstarts observed at Ballachulish in August 1890, whereas not a single bird was seen there five years before' (*Zoologist*, 1890, p. 437, and *Scottish Naturalist*, New Series, 1891, vol. i. p. 43; also vide *Fauna of Argyll*, May 1892, p. 58, footnote). Second, our next link is as related above by Mr. C. H. Alston, far up the Spey in Badenoch. And our last link is the increase down the Spey in 1891, as vouched for by Hinxman, Harvie-Brown, and many others.

Surely after this example we have more claim to adhere to the theory (!) of the great fly-line and lines of dispersal up and down the Spey valley, and to sustain what is elsewhere said by us as to the *earlier* arrival of *certain* species in spring near the head-waters of our eastern watersheds than in the lower valleys. Of course we do not adhere to it as a forced rule for even *all woodland* or *land-birds*. What still remains to be accomplished is to ascertain the principal fly-lines of each individual species. We hope we have not wearied our readers by such great detail under this illustrative example.

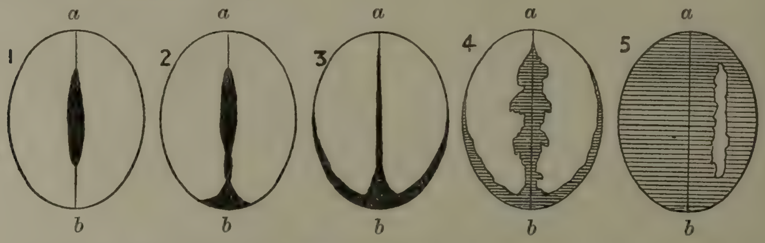
Simply in order to carry our observations up to date of publication we add the following notes :—

In 1893 we found the Redstart not rare amongst the forty-year-old pines of the western portions of the Culbin Sands in April, several pairs having been observed during a drive down the Cockle Road, which leads to the shore opposite the old bar of Findhorn. We also observed Redstarts down upon the delta of the Spey at and below Fochabers, in August. At Fochabers it may be put down as continually resident, even from our first record as given by Mr. Foljambe when he was shooting tenant near there.

As regards greater elevations, Hinxman found several pairs nesting about Inchrory and in Glen Builg, and young birds were met with at an elevation of 1700 feet.[1]

Since the last paragraph was penned, we have acquired very good evidence of a similar wave, entering the Great Glen from the south-west, and proceeding along the trough to the north-east. The Redstart has been considered quite rare on Loch Ness until lately, but is now—in 1895—recognised as common by natives, who know it by a Gaelic name. We observed it abundantly in June 1895 along the north-west side of Loch Ness, but along the tributary glen of Urquhart—over five miles of road between Drumnadrochit and Loch Meiklie—we did not observe one single bird during the same time, although there were equally suitable nesting haunts in plenty. Again, around Inverness, Buckley had not seen one bird in the same (present year, 1895) up to the dates of the first week or ten days in June.

We are indebted to an American author for the following diagrams, and we apply it upon the same general principle (or law ?) which he illustrates under his title,—*Evolution of the Colors of North American Land Birds*, by Charles A. Keeler, p. 160 ; San Francisco, 1893.



In order to apply it to our present purpose :—

Let the lines *a b* represent in each figure indicate the valley of the Spey. The Redstart in its earlier stages of dispersal populated the main valley along what at that time represented *the great main line of least resistance* (*vide* Mr. Keeler's argument, *op. cit.* pp. 159, 160).

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[1] Mr. Sim found it abundant on Upper Dee around Braemar in 1893, but in greater or less numbers it has occupied Deeside for years. It may be thought that we go too much into details of distribution of our commoner species ; but we believe that such details will some day serve a useful purpose, when the averages come to be taken, not only of the distribution of different years and seasons, but also of the advance or decline the species make in altitudinal range—from decade to decade, or year by year, according to climatic changes.

Finally, between the times of its earlier advents and dispersal, and say that of 1893, it may be said to have become *general*, as shown in *a* 5, and with *decreasing density*.

In *a* 4 a dispersal is shown where 'the lines of least and greatest resistance' in Spey valley are represented by the narrowings of and widenings of the course at the various defiles we have described in the earlier portions of the book—amongst which are the Pass of Sourdan and Lower Craigellachie in Speyside, of Upper Craigellachie in Strathspey, and Craigdhu and Kinrara in Badenoch. In *a* 3 a wave is shown by the fining down of the central streak or valley, and an increase at the extremity before the flood, so to speak, dams back the surplus into the side valleys represented in *a* 4.

Although we have applied these diagrams to illustrate the dispersal of the Redstart, as being a very good example for illustration, yet the above remarks may be equally applied to several other species whose distribution is on the same lines.

[Ruticilla titys, *Scop.* Black Redstart.

'A bird which, in four different years, was seen in the Elgin district, I think, must have been this species. Some forty or fifty years ago it brought out its young at No. 3 South Street, Elgin, and more lately at the Manse of Elgin, in an apricot-tree. In 1856 and 1858 it bred at the Manse of Birnie. In one of these years I had one in my hand, having been caught under a net on the wall. It appeared to be a young one. Both it and those I saw at 3 South Street, Elgin, were darker than the Spotted Flycatcher. Still, however strong in my opinion, perhaps some further evidence would be desirable' (Note by Dr. Gordon of Birnie). A specimen of this bird was obtained in Cullen, Banffshire, by Mr. Thomas Edward in 1851 (*Naturalist*, vol. i. p. 145).

Edward relates that he was only aware of two of this species having been seen in the county of Banff. Edward wrote in 1876. Mr. Robert Gray quotes the above record of the Cullen bird (*Birds of the West of Scotland*, p. 84, 1871). Not any trace of the specimen is now to be found (Harvie-Brown). We see no reason why specimens of this species may not occur at times, seeing that they have occurred both to the north (Pentland Skerries, etc.) and to the south (Isle of May and Forth); but meanwhile, unless we receive a positive record before going to press, we must follow our rule of *square brackets* to date.]

Cyanecula suecica (*L.*). Blue-throated Warbler.

On September 15th, 1890, Mr. H. Brinsley Brook, whom we had the pleasure of afterwards meeting at Forres in 1893, *saw* at

Hopeman (on the coast about seven miles from Elgin) a Blue-throated Warbler. He writes to us he 'followed it for some time with a gun, but it was so wild that it escaped me. I am, however, absolutely certain of its being a Blue-throat, as I identified it, beyond a doubt, with a strong telescope, though it would be impossible to say to which of the two forms it belonged. I put the date down in my game-book' (*in lit.* 4/i/93).

Erithacus rubecula (*L.*). **Redbreast.**

Widely distributed, and resident at all seasons of the year, and equally at home in the wildest glens as in the gardens near a town. Apparently these birds' numbers fluctuate, as Mr. Baillie reports them as very scarce about Brora in 1892.

The Robin was early recorded as 'Common' (*Fauna of Moray*). Now it is 'Resident' and 'Abundant.' It occurs in all the wooded and cultivated parts of the country, frequenting the neighbourhood of houses in winter. Robins are found also amongst cut trees and branches in the pine woods, and even far up among the 'slocks,' ravines, birch woods, and even on the heather tracts high up among the scaurs and screes of the Carn districts, miles away from human habitations. The species is widely dispersed in pairs over the whole area, except at the highest elevations, yet rarely seen in any numbers at any one place, being pugnacious and exceedingly jealous of each other's intrusion.

Sub-family *SYLVIINÆ.*

Sylvia cinerea (*Bechst.*). **Whitethroat.**

Local Names.—'Fitin' or 'Whitin' (J. O. W.).

A summer visitant that may be described as locally common. About Inverness, where the banks of the Caledonian Canal are covered with hawthorn, brambles, and other thick brushwood, the bird is very common, and we are informed it is so at least as far north as the borders of Sutherland, where the locality is suitable, after which it appears to get rarer the farther north we go. We have no notes of it from the higher and wilder glens, but it follows the Great Glen, and is found at Invergarry and about Glen Urquhart. We have notices of it also from most of the suitable localities along the east of Ross-shire to Tain, where it was noticed by Sheriff Mackenzie and by ourselves at Dornoch, across the Dornoch Firth. It would appear to be local farther north, the lower reaches of the Brora and Lothbeg being places where it is known to breed.

The *O.S.A.* is silent. Edward speaks of it as 'more numerous than the Sedge Warbler or Blackcap' (Banffshire). It occurs in Smith's lists, and there is a specimen in the Banff Museum.

South of Inverness the species is not common, and somewhat local, scattered localities being the Laigh of Moray and the Main wood near Elgin (*Fauna of Moray*). In 1885 J. Backhouse records having seen it at Dalwhinnie, about June 26th, in the young plantation of larch and pine trees near the hotel. It is rare, and has only once been seen by Hinxman, near Aberlour, during three years' observations. In a very likely spot, a steep 'brae' overlooking the bed of the Upper Deveron, opposite the meal-mill at Lesmurdie, in June 1892, we saw either two or three pairs.

We once observed it on the Nethy in Strathspey (1892), where it appeared to be recognised, but only as a scarce species, by the local gamekeepers. The bird in question sat close to where a keeper and Harvie-Brown were watching a Crested Tit's nest which contained young, in May 1892. Mr. Stuart, who has a small collection of eggs, made by himself in Abernethy, marks it as not uncommon.[1] It is included in a list made at Delnashaugh in Glen Avon by two anglers who resided there in April and May 1892, as reported by the late Dr. Gordon.

Nowhere can we say we have ever found it abundant in Strathspey, but we cannot but believe that there are localities nearer to Inverness, along the Moray Firth, where it is more numerous. We find Mr. Martin, late Curator of the Elgin Museum, spoke of it as found as long ago as the summer of 1844, near that place. In 1893 we saw several in a clearing in Abernethy Forest in April—an early date—near Braenewton (pronounced *Braenettin*), and it appears to be on the increase.

In May 1893 we found the Whitethroat very abundant on Lower Deveron around Drachlaw Farm and Netherdale, where, with a friend, we were fishing. Many nests were seen. Nowhere else within our area have we ever seen them so abundant and clamorous, although from observations made later in the year—August—we believe they are nearly or quite as abundant around the mouths of Spey, and in the districts bordering the Firth to the westward, the lower reaches holding the greater numbers in autumn.

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[1] Mr. Stuart, son of the head forester under Mr. James Grant Thomson, who is wood manager on the Countess of Seafield's Strathspey estates.

On the scrub-covered islands of the Spey delta and banks of Speyside old and young were congregating along with Willow and Sedge Warblers in August, and the bushes were literally alive with these species. It would be interesting to know by positive observation the line of flight they chose when at last they left upon their grand migration. Until our 1893 Lighthouse returns come to hand, we must as to this remain in the dark.

[Sylvia curruca (*L.*). Lesser Whitethroat.

In some articles that appeared in one of the Inverness papers, entitled 'The Scenery and Bird-Life of Glen Urquhart,'[1] the Lesser Whitethroat is mentioned as not uncommon in that district. So far we have no other record of it north of the Ness.

Edward includes it, but we are doubtful of the correctness of the record. We have ascertained that he obtained a specimen from England, given to him by Professor Newton, he himself acknowledging receipt of it in a letter dated 18th July 1853. Mr. Foljambe speaks of it as frequenting whins in the neighbourhood of Elgin, but we can obtain no other evidence of either earlier or later dates.]

Sylvia atricapilla (*L.*). Blackcap Warbler.

An uncommon late autumn, or even winter, visitant to the northern parts of our area, and irregular in its appearance. Two in the Dunrobin Museum were procured by Sheriff Mackenzie: the first, a male, at Dornoch on November 1st, 1871, and the second, a female, in November 1891. Another was found by the same gentleman drowned in a tub in his garden at Dornoch in February 1874. We have a specimen of one—a female—that was shot at Kintradwell by Mr. Houstoun in November 1889, which had been seen for several days feeding on the berries of a cotoneaster.

In some notes kindly lent us by Mr. G. Muirhead,[2] that gentleman mentions that on June 17th, 1867, he got a nest of five eggs and the pair of Blackcaps belonging to it near the mouth of the Coilty river, at Balmacaan in Glen Urquhart.

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[1] By Mr. A. Craig.

[2] Author of *Birds of Berwickshire*, and at one time factor at Glen Urquhart; now factor to Lord Aberdeen at Haddo Mains, Aberdeenshire.

Mr. F. Cameron, Moniack, near Beauly, informs us that he has taken the nest of this species at that place, and that he has noticed them on more than one occasion.

Another Blackcap was obtained by Mr. Rose of Holme Rose in December in 1886, the only one known to him to have occurred there.

St. John mentions hearing and seeing a Blackcap in his garden at Invererne near Forres on May 11th, 1852; and in the June and part of July of the following year he identified another, a male, in the shrubberies near the house, which was in full song; and from this circumstance he imagined it to be breeding, though he did not observe the female.

We know that a migratory movement of this species takes place upon the north-east coasts, as has been repeatedly observed as far north as the Caithness shores of our mainland, and even in the remote Shetland Isles (*Annals*, 1893, January, p. 12), if not every year, at least in some autumn seasons. The bleak and inhospitable character of Caithness, however, offers few inducements to this species to remain into the summer and breed, although they may return along the old lines of migration in spring; but Moray offers totally different conditions.

The Blackcap can hardly be considered, as yet, a plentiful species anywhere in the Spey valley, but we have met with it here and there, but nowhere commonly. We have met with it on the Nethy at two localities—one a considerable distance up the valley above Forest Lodge, and again we have seen it near Fochabers, old and young apparently gathering together before migrating.

Mr. Charles H. Alston observed one female of this species, 'recognised by the rufous head, and seen in the garden one day in August'—no doubt beginning its autumn migration to the west or south-westward out of the Spey valley.[1]

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[1] In a little volume before alluded to, viz., *Summer Excursions in the Neighbourhood of Banff*, the Blackcap is alluded to, and there occurs the additional note (p. 36):—'This delightful warbler, by some reckoned equal in song to the Nightingale, is a rare bird, and has been but lately (date of publication, 1843) noticed in the vicinity of Duff House. It is, however, becoming every year more plentiful. It would seem to advance with the increase of shrubbery and sheltered plantations.' But at the present date of 1893 the Blackcap only occurs on the east coast-line of 'Dee' as a straggler, as we are informed by Mr. Sim.

[Sylvia hortensis (*Bechst.*). Garden Warbler.

Mr. A. Craig says of this species that it is 'not very numerous in Glen Urquhart.'

The late Dr. Gordon of Birnie wrote us:—

'I have no doubt that a Garden Warbler remained in the garden here (Manse of Birnie) for four or five days in May 1871. Its notes and song, its size and colour, all pointed to its being the Garden Warbler.'

This species is recorded by Mr. Foljambe as occurring near Grant Lodge (*Fauna of Moray*), but we have no reliable statistics of later date. Edward mentions it, but also acknowledged receipt of a specimen from Professor Newton, along with a Wryneck (*q.v.*) and a Lesser Whitethroat (*q.v.*)—*in lit.* to A. N., 18th July 1853. We believe these specimens sent to Mr. Edward were wanted by the latter gentleman for the purpose of comparison and identification of local specimens, but there is nothing to show this in the correspondence which we have been allowed to see by the kindness of Professor Newton.]

Sub-family *PHYLLOSCOPINÆ.*

Regulus cristatus *Koch.* Golden-crested Wren.

This is a resident species, fairly abundant, and breeding in the north of our area, wherever the locality is suitable for it; it is much more abundant, or, at least, more easily observed in the winter.

About Guisachan the late Lord Tweedmouth said it is much rarer than formerly, though we saw it there in 1892.

Southwards it is resident and fairly abundant, some years receiving large accessions in winter from continental sources. The species appears in Edward's and all the earlier lists. Smith says:—'The Gold Crest appeared here—*i.e.* Banffshire—a few years ago in a large flock on the links during winter. Its nest has been found in the top of a large whin-bush.' Many records occur of its appearance on our Scottish east coast from north to south in phenomenal numbers on migration.

Goldcrests are abundant in the young woods of Rothiemay and Lower Deveron, and occur in flocks along with Tits on the reaches of Middle Deveron, and they breed in the Bin-wood and other plantations.

In 1885 Goldcrests were reported as unusually abundant in Abernethy, and old and newer records point to their abundance throughout the area. It has been found common far up the hill-sides and tributary streams where fir-plantations occur, even at Dalwhinnie, as observed by J. Backhouse, and it builds in branches of spruce and pine and in the tall juniper bushes of the forest areas of Spey.

Mr. Charles H. Alston observed it several times in Upper Badenoch, but could not consider it common, there being but few coniferous trees in the locality. Mr. Alston's observations were principally made in the late summer and early autumn.

Mr. Hoy has the note:—'Flocks of them seen at Gordon Castle in January 1817.' Then follows Mr. Hoy's admirable, as a rule, critical remarks and descriptions, taking Berkenhout and Pennant, by which it is apparent that a bird procured is a female, 'It had the yellow line but no scarlet crown.'[1]

Phylloscopus collybita (*Vieill.*). Chiffchaff.

A bird we have, personally, never come across in the northern part of our present area. Mr. Jennings in his remarks says the bird is common around Tain, but we think he has mistaken some other species for this.

Dr. Gordon saw a Chiffchaff in a small shop in Edinburgh, killed at Erchless Castle by The Chisholm (since deceased), who was passionately fond of collecting.

South of Inverness it is a summer visitant, but rare or overlooked. Edward lays claim to having himself taken a specimen—the only one he had seen—in the policies of Duff House, but none occur in the Banff Museum, and it is not included in Smith's lists. Mr. Foljambe, an excellent observer, found it in Grant Lodge woods. Hinxman, in 1891, had the note that 'the unmistakable song of this bird was heard in the birch-woods of Strathavon on October 8th, 1891, after a succession of southerly gales. He had never before in all the years he has been working in Banffshire, seen nor heard the bird' (*Annals S. N. H.* 1892, p. 135).[1]

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[1] As an instance of Mr. Hoy's accurate treatment of his work, we quote here his remarks entire. These remarks appear *under each species obtained*:—'Length of the bird, 4 inches: otherwise not agreeing with the description here [*i.e.* Berkenhout's]. It had the yellow line, but no scarlet crown. It agreed better with Pennant's description, especially as to the coverts of the wings; and the long claws, particularly the back claws, as mentioned in the *Fauna Suecica*. The bill is rather dusky than black.' As already stated, the above is given only to enable our readers to realise the painstaking character of Mr. Hoy's notes. We might perhaps have selected a better example, still we think the object is illustrated sufficiently.

Mr. Archibald Craig, in the *Scot. Nat.* 1891, p. 92, records his discovery of the Chiffchaff, in June 1890, in the Pass of Inverfarigaig, from which he naturally draws the inference that they were breeding. His remark that they frequented a clump of fir-trees is not exactly in keeping with our experiences of their usual haunts, although the allied Siberian Chiffchaff was particularly fond of perching upon the top shoots of larch and spruce trees, as observed by Seebohn and Harvie-Brown on the Petchora river in north-east Russia.

Mr. O. A. J. Lee informs us that he found a nest of the Chiffchaff near Forres on May 21st, 1887.

Phylloscopus trochilus (*L.*). Willow Wren.

Undoubtedly the very commonest warbler in the north. No matter in what wood you may be, whether in the low lands or the wildest glens, once May has set in, on every side you will hear these little birds singing.

This summer visitant goes up to the highest elevations of birch-growth. Abundant, and generally dispersed, it arrives in April, varying very little in the time of its advent. It does not appear to vary much in numbers, and all local returns speak to its abundance.

We find by numerous entries in our journals and notes the advent of the Willow Warbler chronicled on dates between April 23d, 1886, and April 19th, 1869 (*Fauna of Moray*), to April 27th, 1850 (*ibid.*), and one recorded as late as 27th May as a first appearance (1844), but this can hardly be accepted as indicative of its true time of arrival. In cold late springs, as in 1892, Willow Warblers do not sing on their first arrival, and in consequence are less conspicuous. We noted that they were particularly silent in April 1892, and long into the summer, and we watched birds silently engaged in searching for food, at times, when, in ordinary years, they would be singing.

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[1] Only once have we met with it in the central districts of Scotland, viz., in the Forth area around Stirlingshire, and that was in the month of September.

An albino variety of the Willow Warbler was sent us by our friend the late Campbell Macpherson Grant[1] of Drumduan, Forres, in the summer of 1890. There was a brood of these albinos there that season.

In 1893, along with most other woodland species, the Willow Warbler was extremely abundant, and Hinxman and Eagle-Clarke recorded it from Loch Builg side, at an elevation of 1600 feet, where it was quite common. The abundance of land insects afforded specially early and good feeding to avian life, but there was great destruction of water insects by the long drought, and fish were largely indebted to larval forms in the water.

Phylloscopus sibilatrix (*Bechst.*). Wood Wren.

The Wood Wren is not uncommon in the south-east of Sutherland, and was first observed in that county near Rosehall in 1875. The next year it was seen in the strath of Kildonan, and the following year at Dunrobin, where a nest was taken in 1883.

Hepburn mentions that the Wood Wren was common about Foyers in 1847, and he also thought he heard it at Glenmoriston at the same date. We have notes of it from Glen Cannich, where it is numerous in the lower birch woods, Strath Glass, Glen Affric (Doncaster[2]), and Invergarry. The Wood Wren is widely dispersed, though rarer than the Willow Wren, and there are few woods suited to it from which it is absent. They seem to prefer open woods with little bottom cover. They are abundant about Inverness.

The late Mr. J. Martin[3]—whose portrait we have given in our frontispiece—is certain he identified the Wood Warbler in the

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[1] We deeply regret to have to record, just as we were going to press, the death of our friend Mr. C. Macpherson Grant, who died at his residence at Forres on the morning of February 28th, 1895, at the age of fifty-one. See *Scotsman* of date March 1, 1895.

[2] Mr. J. D. Doncaster of Sheffield (v. *V. Fauna of Argyll*, p. xi.).

[3] Mr. John Martin, long Curator of Elgin Museum, who left behind him long faunal lists of species of Vertebrates, Invertebrates, and Plants of Moray, and much good material, most of which has already been utilised in Dr. Gordon's *Fauna of Moray*. All his MS. is in our possession at Dunipace, we having purchased the whole from the Provost, and Town Council of Elgin in 1885.

Oak wood, and Mr. Foljambe gives the Main wood—both plantations near Elgin—as localities. Mr. Robert Gray records it from Banff, but only upon the authority of Edward (*B. of W. of Scotland*, p. 97).

We have always looked upon the distribution of this species as more typical of the west coast anywhere north of Clyde than of the east coast north of Forth; we believe it to be commoner in suitable quarters in equally-sized areas in the west—in other words, they are commoner and more general in the west than in the east at the present time, and we believe their spread and increase in extension of range may enter our area from the west, as in the case of the Redstart, as we have already endeavoured to explain.

Since writing the above, and while bringing our work down to date of going to press (October 1894), we have received a later note by Hinxman—whose opportunities for taking observations have been very considerable indeed of late years in Strathspey and West Ross. Hinxman says:—'Appears to be very thinly distributed in Strathspey. Seen at Craigellachie (*i.e.* Upper Craigellachie), and Rothiemurchus, May 8th and June 3d, 1894 (the first time I have observed it in Upper Strathspey). Also at Broulin, at the head of Glen Strathfarrar, June 5th.' We think there is little doubt the increase—if it does occur—will come from the west, or south and west, down the valleys. We have now to record a very sudden and great increase of this species at Aviemore in the spring and summer of 1895 (*auct.* Hinxman and Eagle-Clarke).

Acrocephalus phragmitis (*Bechst.*). **Sedge Warbler.**

A widely distributed summer visitant, being found more or less in every suitable locality to the very north of our area. Hepburn remarks that he met with this species at Glen Urquhart in 1847, though it was scarce; but Mr. A. Craig remarks that it is extremely common in the marshy ground there, where the Coiltie and Enrick run into Loch Ness, so that this is evidently an increasing species, at least along the line of the Great Glen. We did not observe the species so far up the valleys as Guisachan. None were observed in their old haunts about Brora in 1892 (W. Baillie), and it was not observed by Mr. Doncaster in the Inverness-shire glens in 1891. They are usually abundant around Inverness.

South of Inverness this summer visitant is fairly common, but local. Edward speaks of it as 'comparatively rare,' and 'it is only of late years this bird has visited us. Harvie-Brown found it common at the river-side at Rothiemay and down the Deveron to Banff. 'First heard singing on 16th May 1890, close to our inn-window, which overlooks the river at Rothiemay, and a thicket of alder and willow bushes.' First heard on 13th May at Westerton (M. D.[1]) in 1889. They did not sing at all in May 1891, though the birds were seen every day; they attempted it once or twice, but failed. On the 17th May that year we had the 'Gowk Storm,'—or, as it is also locally termed, 'The Gap o' May,'—and snow lay six inches deep. The weather was cold and ungenial, and the birds generally very silent. In ordinary summers the Sedge Warbler sings 'bravely the whole summer night through, in the middle of bushes by the side of the Bogie and Deveron' (*auct.* Dr. J. O. Wilson).

The Sedge Warbler is however sufficiently local to warrant some detailed particulars. We observed it and heard it sing first upon the 23rd May 1884 at Aberlour. It breeds all along the Laigh of Moray between Forres and Elgin, and we saw eggs in Mr. Mackessack's[2] collection at Newton Struthers, near Forres. Later in the season—about the end of June—Mr. J. Backhouse observed a single bird in the plantation at Dalwhinnie, but that gentleman was under the impression that it did not stay more than two or three days. This is significant of migration, the plantation at Dalwhinnie being a good point for observation of migrants in July or August. Mr. Backhouse heard it sing on one or two days, and saw it once.

Though far from universally distributed, yet many localities have been recorded by competent observers amongst the lower-lying tracts. Mr. Wm. Evans of Edinburgh records it from Cromdale on Spey, and we have met with it as far up Spey as Kingussie, and some years ago at Laggan; but it is not usually found at any great elevation above the valley. In 1890, our friend Mr. C. H. Alston found it nesting in Badenoch, taking one nest, and seeing and hearing several other pairs of the birds.

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[1] *i.e.* Middle Deveron; see Physical Aspects, *antea*, p. 110.

[2] Mr. J. Mackessack of Newton Struthers, who deserves the thanks of all ornithologists for the strict preservation he accorded to the Pallas' Sandgrouse, which frequented his ground in large numbers.

At Holme Rose the Sedge Warbler—along with the Blackcap—has only been observed once by Mr. Rose to date of 1892.

In 1893 we found it very abundant indeed on the Lower Deveron, and nests were found around Drachlaw. Up in the hill-valleys we found them close to Lesmurdie, on Lower Cabrach valley, and here also earlier in the year Hinxman had seen them. We found them also quite abundant just above Beldornie, in a tangled thicket of gorse, broom, and bramble, on the right bank of the river, where we had not observed them in previous years, whilst fishing there constantly. [Whitethroats were seen at the same time and place, and hitherto had been unobserved there by us.] There were distinctly large accessions to their numbers on Lower Cabrach valley that summer. At Inchrory, on the Avon, Hinxman heard one singing in the garden, but he does not think it remained to breed. In early August we found them swarming —young and old—on the bush-covered islands of the delta of the Spey, *i.e.* between the 1st and 8th of August 1893, on the same ground as was frequented by Whitethroats, at the same time, as mentioned under that species.

Sub-family *ACCENTORINÆ.*

Accentor modularis (*L.*). Hedge Sparrow.

In the northern districts of Inverness-shire, Hepburn remarks that 'the modest little hedge-chanter was much missed about the homesteads' (1847). At the present time the bird is common enough, though not abundant, and we have met with it wherever we have been, and all our correspondents mention it as common.

Southwards the Hedge Sparrow is resident, general, and common, but shy and retiring, and not to be considered an abundant species. It is certainly a very unobtrusive one, and is no doubt really commoner than is realised, owing to its skulking and quiet habits rendering it inconspicuous. We did not see it on the Upper Findhorn in July 1891, but it does occur there, as elsewhere.

Perhaps this bird is nowhere more common than amongst the juniper growth around the solitary huts of the foresters and crofters in the dense woods of the forest tract of Spey, Dulnan, and Findhorn, and near the shooting-lodges of Glenmore. A few pairs penetrate up the higher valleys among the hills of the Carn districts, and indeed up all the mountain glens and wooded valleys, and are even found higher, above the growth of the highest birch. Thus in 1893 Hinxman found it nesting amongst juniper at the head of Loch Builg—1600-1700 feet.

Family **CINCLIDÆ**.

Cinclus aquaticus, *Bechst.* **Dipper.**

Local Names.—Water Cockie, Ess-Cock, Water-craw.

Common and resident, as long at least as their haunts are not frozen; in this latter case they take kindly to the sea-shore in the vicinity of the river-mouths. From the fact of the Ness never freezing, that river is a great haunt of theirs in the winter, and they may be seen all along the river-edge near the town of Inverness, running and diving, bringing up some large insects to the top to eat. At other times they fly over the river and light with a splash in the heaviest current, diving down for their food there as easily as in the slower-running parts, though of course they are often carried a long distance down from where they entered the water.

Strangely enough, Hepburn remarked that he never met with the Dipper during his visit to Inverness-shire in 1847, and attributed their absence to the scarcity of fresh-water Mollusca, which he could not find in his one or two very hurried searches for them. We met with them ourselves at Guisachan, which is in the wilds of Inverness-shire, so that they may have largely extended their range during the last half-century.

The Dipper is most abundant in the Carn districts of Moray, and along the tributary streams, but common also on the Deveron and all the rockier rivers. It is less common in Speyside and Strathspey, yet not to be called rare, even on the main stream. It nests under the arches or timber of bridges, against the faces of rocks overhanging the streams, or higher up amongst the tinier rills and burns, even amongst overhanging heather, under the contracted banks of peat, which nearly meet over the dribbling stream beneath. Such nests we have found far away up the hillsides, above the 1000 feet level. On few rivers have we seen Dippers so abundant as the Fiddich, between Craigellachie and Dufftown, but, really, it is one of our most conspicuous companions during any fishing tour amongst the hills and streams of Moray. It is said to be less abundant around Forres by Mr. Wm. Brown, and naturally it is so, as the rivers do not run through such enticing nesting ground. Edward spoke of the Dipper or 'Water-Craw,' as once treated as vermin, and as more abundant about thirty years ago, and adds, 'now rarely to be seen' around Banff. Now, however, we cannot hear of its suffering much or any persecution, and it has no doubt entirely recovered its numbers, if, indeed, they were ever decimated in Moray.

Dr. Gordon has given strong evidence against our little friend, on the authority of one of the water-bailiffs, who gives evidence of having seen a Water-Crow contend with a Brown Trout for the spawn of a Sea Trout, at the very time the latter was shedding its ova on the 'redds' (*Fauna of Moray*). That they do take ova cannot be denied, but they are resident birds with us, and surely cannot feed upon ova all the year round; and before condemning the sprightly companion of the angler as inimical to his interests, it would be well to consider how much insect or other life, destructive to ova, he may destroy all through the summer months, and therefore the possible good he may do to counterbalance his short surfeit (if you will) of Salmon, Sea Trout, or Brown Trout ova. It is the old story: men are pertinaciously blind to possibilities which cannot easily and without trouble be patent to their coarser senses; and are ready to condemn, solely upon facts which they are able, without that trouble, to perceive. They cannot trust Nature to preserve the balance, but often ignorantly interfere with her.

Dr. J. O. Wilson[1] also bears testimony to the scarcity of the 'Water-Crow' and says it was 'nearly exterminated about twenty years ago, as a price was set on its head on account of supposed "depredations" on salmon spawn.' It is not yet very abundant on the Deveron near Huntly (whence Dr. J. O. Wilson writes), though some four or five pairs are known to us as breeding within a mile of that town.

It is curious to find the *O.S.A.* silent as to the Dipper; but see our remarks on this subject at p. 172. Less attention seems to have been paid to Natural History in Moray one hundred years ago, for instance, than in Argyll, where the population is mostly Celtic, or was so. The Highlander knows birds better than the average Lowlander for very obvious reasons, which have been pointed out before.[1]

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[1] Dr. J. O. Wilson of Huntly, to whose article and correspondence we are much indebted in connection with the district around Huntly on the Deveron.

In 1893 Hinxman found the Dipper abundant far up Glen Avon, and up the mountain streams, even to their sources on the high levels of Cairngorm, but not nesting, he considers, higher than 2000 feet.

Family **PARIDÆ**.

Acredula rosea (*Blyth*). Long-tailed Tit.

A common and resident species; more often seen in winter than in summer, as in the former season it roams about in families. In the summer it is more partial to birch woods, placing its nest against the bark or in the fork of a birch-tree. Mr. Baillie writes us that for some years back he has been unable to find a nest of this bird in the woods about Brora, where once they were common. They were observed at Badenloch for the first time in November 1890, probably on migration.

No accessions to its numbers are observed in the winter. Edward considered that it occurred in autumn in about equal numbers with Great, Cole, and Blue Tits (see *Life*, p. 691), but we can hardly indorse the remark even on Edward's own ground. We think it commoner than the Great Tit, but much less abundant than either the Blue or Cole Tit. We have only met with one family party near Rothiemay in three years in the month of May. We found it commoner at Aberlour on Spey in 1884 and 1885. The Long-tailed Tit is also common up Glen Avon and Lower Glenlivet, as observed both by Hinxman and Harvie-Brown. It visits at times the sand-hills of the Culbins, and feeds on insects there. As early as 1844 it was spoken of as common, but rarer than the Cole Tit in Elgin.

An old nest was found by Mr. J. Backhouse[2] in the birch woods above Loch Coulter, between Dalwhinnie and Laggan, at an elevation of about 1600 feet. This was in June, but the birds were not seen.

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[1] Vide *Squirrel in Scotland*, and Robertson's *Gaelic Topography*.

[2] 'J. Backhouse, Esq.,' formerly referred to as J. Backhouse, Esq., *jun.*—*i.e.* before the death of his father, Mr. J. Backhouse, the well-known botanist.

Mr. Stewart of Grantown reckons it rarer in Abernethy than the Crested Tit, and is seldom seen far from birch-trees in the nesting season. We perfectly indorse this opinion from our own observations. In Badenoch, family parties have been met with by Mr. Charles H. Alston in 1890, and also were seen in company with Blue and Cole Tits. We found it also at Loch Meiklie and in the Great Glen in June 1895.

Parus major, *L.* Great Tit.

Local Name.—Oxee (*i.e.* Ox-eye).

Our present area contains the northernmost breeding range of the Great Tit in the British Isles at the present time. It occurs as far north as Fairburn, near Muir of Ord (Capt. Stirling[1]), but is certainly not an abundant species north of the Ness. Hepburn recorded it as scarce in the woods of the northern districts of Inverness-shire (1847), but Mr. A. Craig says it is fairly abundant in the woods of Glen Urquhart. We have seen it at Invergarry, but not at Guisachan. Mr. Doncaster observed it in Strath Glass in 1891. St. John also remarks that the Great Tit is one of the less common species of Tits in the vicinity of Forres.

South of Inverness this species is neither very general nor very abundant. It is included in local lists on Deveron as far up as Huntly. We have never found it in numbers to compare with Cole and Blue Tits anywhere in the area. Once only did we find it on Middle Deveron. Dr. J. O. Wilson of Huntly correctly describes its distribution thus—'Pretty common, but more solitary than the other Tits'; he 'has an impression that it is more abundant of late years.' It is commoner upon the lower reaches of Spey than on the Deveron.

It is of sufficiently local (ascertained) distribution to warrant details. It was observed at Aberlour on Spey, but not very abundantly about Dalnashaugh on Avon in spring; seen also in Glen Fiddich below Dufftown; noted at Forres (J. Young) in 1885; observed at Tomatin on the Findhorn, July 1891; and it is noted by Hinxman as fairly common in Glenlivet and Strathavon. Early localities noted in Dr. Gordon's *Fauna of Moray* are Cawdor woods, 1833, and Grant Lodge (*auct.* Mr. S. Foljambe). At the present time Brown of Forres says of it, 'common and abundant.' Mr. Charles H. Alston notes it as 'very scarce' in Upper Badenoch in 1890; in 1893 we ascertained its presence in Strath Nethy.

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[1] Capt. W. Stirling, younger of Fairburn, Muir of Ord.

Parus britannicus, *Sharpe and Dresser.*[1] British Cole Tit.

The commonest of all the family of Tits in the north, going up the glens as far as the trees extend, and at times beyond them, as mentioned by us in the *V. Fauna of Sutherland and Caithness*, p. 114, where a pair are recorded as having bred in a crack in a dry hill of peat near Overskaig, on Loch Shin, in 1878. They were first seen at Badenloch in November 1890.

We were informed that this species does not occur about Invergarry, and certainly we ourselves did not meet with it there during a stay of two or three days in May 1892. We cannot help thinking that it may merely have escaped our notice, or that it may be scarcer there than in most other places. At all events, the fact is curious that it should be so uncommon. Mr. Doncaster met with it in Strathglass and Glen Affric in 1891.

St. John remarks that the Cole Tit is more uncommon than the Marsh Tit in the woods around Forres; this probably refers to a period between 1840-50. The Cole Tit is certainly not so common about Inverness as in many other places, but this may be accounted for by the want of birch wood, in which so many of our soft-billed birds live and breed. St. John's experiences of the comparative rarity of the Cole Tit is quite the opposite of ours. Of course we cannot say whether any alteration has taken place in their relative numbers since St. John's record.

In the south of our area the Cole Tit is common, and generally distributed in most parts, but preferring mixed hardwoods and smaller plantations. It is most prominent in early autumn migration, when, as we have often noted by compass, they travel from top to top of the pines, in an invariable south-westerly direction. We have observed this on the Findhorn in forty-year-old pinewoods, and in the Spey valley, besides—more generally and without the aid of compass—elsewhere. They are accompanied on such occasions by other species—Gold Crests, Chaffinches in large numbers, Creepers and other species of Tits. This migration is carried on whilst the birds feed rapidly as they go along, and they seem to 'take the different styles of country they meet with as they fly,' deviating little from the south-westerly direction usually pursued.

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[1] We cannot consider that Messrs. Dresser and Sharpe were well advised to figure —as a type of the new discovery—in a geographical race which has been named *P. britannicus*—an example obtained amongst the pine forests of the North of Scotland, even although it had been procured by one of the authors upon a Scotch nobleman's estate. Greater differentiation from the Linnæan type would have been discovered in British examples from more southern localities.

As early as the date of Mr. George Norman's writings, which referred principally to the district around Forres, he noted the Cole Tit as 'very common.' In 1890 we ourselves did not meet with it at all on the Deveron, at Rothiemay, until July, but in 1891 found it abundantly; it was, indeed, quite the commonest Titmouse on Lower Deveron in April and May of that year. It is reckoned as 'abundant' by Dr. J. O. Wilson. We have not met with it far up the glens among the hills or in the upper reaches of the rivers. Mr. Hinxman considers the Cole Tit as the most abundant of the Paridæ in Glen Avon and Glenlivet; and of later dates it is almost as common in many localities, such as Forres and the Findhorn. We ourselves have never, in many years' experience of Dalwhinnie, met with it so far up the valley or tributaries of Spey, but Mr. J. Backhouse in 1885 saw it once only in the glen of the Allt-an't-Sluie in June or July. He was told previously by a gamekeeper of Colonel Macpherson's of Glen Truim that it was to be found there. Mr. Charles H. Alston marks it as 'very common' in Upper Badenoch.[1]

In 1893, although it was previously supposed by Hinxman only to appear in Glenfiddich in winter, yet that gentleman found parties of Tits ranging as high as Glen Builg in July of that year (1600-1700 feet), but none were observed nesting around Inchrory (1300). We feel sure that these parties seen at Loch

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[1] All Mr. C. H. Alston's notes, be it remembered, are upon species observed between June and September 1890; there are no spring notes. Our own notes and observations around Dalwhinnie and Upper Badenoch do not date much later in the year than 8th August (on several occasions when fishing Loch Errochd), nor earlier than April.

Builg were migratory, or possibly only 'vagratory.' The amount of migration as compared with 'vagration,'—or vagrancy for feeding purposes—amongst the Tit family, we think, has still to be studied.

[*Obs.*—*Parus ater*, L. Continental Cole Tit.—There can scarcely remain any doubt that the Cole Tit which is found in the Spey valley and neighbouring glens may be considered as intermediate in form between the true *Parus ater* and *P. britannicus*. We are assured by Professor Newton that specimens obtained by Wolley at Carr Bridge and in the valley of the Dulnan in 1851, were undoubtedly the true *P. ater*, and not the dusky, smoky-backed Cole Tit of Southern Britain (Newton, *in lit.* April 1, 1893); and we have been at some pains to obtain specimens for comparison, in which we have been obligingly assisted by several of our correspondents during the season of 1893. Our friend Mr. William Evans has a specimen from Tweed, which, he assures us, differs in no way from Spey specimens, and another which is only very slightly more dingy.

We are inclined to consider that the Cole Tits of the North of Scotland are quite as nearly related to those of Scandinavia as they are to what has been differentiated as *P. britannicus*, if not, indeed, more closely affiliated as regards colour to the former.]

Parus palustris, *L.* Marsh Tit.

Said by St. John to be plentiful in the fir woods of Morayshire during winter (vide *Natural History and Sport in Moray*, p. 17). As St. John was so good and close an observer, we give his record as one of special interest, all the more that he says under his next species: 'The Cole Titmouse is more uncommon than the Marsh Titmouse,' and then also describes the latter's nesting sites and eggs, thus giving us to understand that it was not merely a winter visitor but a resident breeding species. But we find it difficult to reconcile the statements as to the comparative abundance of the two species, at least with our own present-day experiences. Of late years we have only one instance of its occurrence recorded in that district, and this was during the winter of 1879, by Mr. Norman, an accurate and excellent observer, who resided there. We have a note from Mr. A. Craig in his 'List of the Birds of Glen Urquhart,' read before the Royal Physical Society of Edinburgh, March 15th, 1882, that the Marsh Tit was observed among the spruce-trees near Balmacaan, in the northern division of our area, in 1866 and 1867, by Mr. George Muirhead of Paxton. But, upon further inquiry of Mr. George Muirhead, that gentleman wrote to us in the following terms:—'Referring to your letter of the 10th inst., I have now looked through my diaries for 1865-1867, and I regret that I have not been able to find any reference in them about the Marsh Tit. When I supplied the notes to Mr. Craig, I must have added the Marsh Tit from recollection only, which (recollection) is that I was under the impression that I saw the bird amongst some spruce firs[1] on the right-hand side of the public road leading from the parish church to the kennels at Balmacaan. I cannot remember the time of year to which the note applied.'

Edward has the very uncertain remark, 'Very seldom seen among us,' and Norman's record at Forres is almost as unsatisfactory. Hinxman thinks he recognised the species in Abernethy in 1891. Dr. J. O. Wilson omits it from his list of the birds around Huntly, and we have no note nor record of it in the whole Deveron valley. Buckley has never met with it anywhere north of Inverness, and Harvie-Brown has never been successful in finding it anywhere south of that town, although specially desirous of doing so, and it has been omitted from every list as a breeding species in any part of the Moray Basin until 1893.

It remained, therefore, to Mr. William Evans to discover, first the bird in 1891, and then its nest and eggs in 1893. During an exploring tour in Strathspey he wrote (*Scottish Naturalist*, January 1891: 'One of the first birds to attract my attention during a short walk in the neighbourhood of Kingussie . . . was the Marsh Titmouse, and thereafter it was noted almost daily. They seemed to have a great partiality for the birchwoods—indeed I never observed them amongst any other kind of timber,—consequently they were most plentiful on the north-west side of the river below Kincraig. They were never alone, but joined with Blue Tits, Cole Tits, and occasionally Gold Crests, in the formation of foraging parties. In the woods below Baldow, and at Docharn, near Boat of Garten, I have seen from seven to ten at a time. In no other part of Scotland,' Mr. Evans continues, 'have I found the species so abundant.' He also observed it in 1891 at Cromdale. Strange, we have searched the locality about Boat of Garten, Docharn, and Carr Bridge in vain for a glimpse of Marsh Tits, nor did we discover it around Lynwilg or Aviemore. It is a horrid little *bête noir* to us as yet.

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[1] A somewhat unusual location.

The late Mr. A. G. More, quoting his authority for that district—viz., Mr. Wm. Dunbar—includes it as breeding 'even as far north as Inverness'; and, on the authority of Edward, as 'occasionally in Aberdeenshire.' Mr. Geo. Sim will no doubt be able to satisfy us as regards the latter record, and we have no further evidence of Mr. Dunbar's, beyond the probability that he repeated Mr. St. John's record, already mentioned.

Mr. Booth does not appear to have met with it anywhere in the north at any season; and above we have, we believe, given every record and statistic published.

But, following up his finding of the birds in 1889 and 1891, and distinctly under the feeling of certainty of their nesting in Strathspey, Mr. William Evans promptly set to work in 1893 to prove it. This he did by finding two nests in the immediate neighbourhood of Aviemore, in May of that year, full particulars of which are given by him in an excellent paper in the *Annals of Scottish Natural History* for October 1893, and which put the question at rest as regards their present nesting distribution. To Mr. Evans all credit is due for his persevering work in this direction, though we cannot quite agree with all his views expressed as regards statements outside of his ascertained facts,—I mean such as relate to Cole Tits, Great Spotted Woodpeckers, and St. John's remarks (*loc. cit.*).

Since Mr. W. Evans's discovery, we have also heard of a pair breeding near the west lodge of Darnaway from our friend Mr. Oswin A. J. Lee, and we have the record of another pair nesting in an elm-tree at Drumduan in the month of June, as we are informed by Mr. James Brown of Forres. This takes us back to Mr. Norman's record many years previously, but we cannot admit that any great increase has become patent in this part of our area.

Mr. R. H. Read met with several in the woods near Loch an Eilein on May 15th, 1889, in which locality we have utterly failed to find it during repeated visits and most careful searching.

This bird, local in Strathspey in most years, and perhaps most common around Aviemore and Kinrara, as shown by Mr. Evans, appears to have suffered from the severe winter weather of January 1895. Hinxman writes us (May 5th, 1895):—'I have not *once* heard the unmistakable call-note of the *Marsh Tit*, which was plentiful here last year'; but he adds:—'Crested Tits much as usual.' The remark appears to us to bear a certain significance in connection with the possible origin of dispersal of the Marsh Tit or both, and routes thence, into Spey.

Parus cæruleus, *L.* Blue Tit.

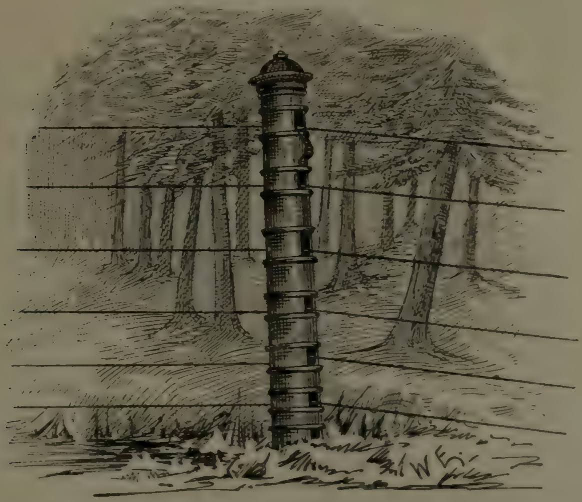
Common and widely distributed, though by no means as abundant as the Cole Tit. We have records of it from most parts of our northern area, such as Invergarry, etc., but we did not observe it during a few days' stay in the neighbourhood of Guisachan.

As in the northern part of our area, the Blue Tit, though resident, is not so abundant as the Cole Tit south of the Caledonian Canal. At the same time, it is found commonly throughout the area, as far up as Tomintoul on the Avon, and up the glens of the Carn district, far up the main course of Spey and tributaries as far as birchwood and hardwoods reach. Hinxman does not consider it so abundant as the Cole Tit in Glen Avon and Glenlivet, however, and seems even to think that it is less abundant than the Long-tailed Tit and Great Tit in the areas where he has been at work.

Parus cristatus, *L.* Crested Tit.

Writing from Edinburgh in November 1844, Mr. T. Macpherson Grant says:—'I procured two Crested Tits near Carr Bridge several years ago, which I now have stuffed. They are the only specimens which have ever been seen by the birdstuffers here, and are those from which Mr. M'Gillivray took his descriptions.' Wolley met with them plentifully in Dulnan Wood, and procured several specimens there. In 1851 the late Mr. Macleay of Inverness had some specimens sent him for preservation from Carr Bridge.

In 1847, as Mr. Lewis Dunbar informs us in his own words, 'I was sent for by Mr. Snowie, Inverness, to be introduced to the celebrated naturalist, Mr. John Gould. He put several questions to me about the birds breeding in Strathspey. I mentioned the Siskin, Crossbill, and Crested Tit. The latter he did not believe bred there, while I maintained it did, so he wished me to send him a nest and eggs, with the two old birds in the flesh, by post, and for which he would give me £5, and left his address. Next season I sent him the nest, etc. etc., as he wished, and I had a letter from him acknowledging their receipt, and sending a cheque enclosed, and stating that he did not believe (had not believed) the bird bred there, or otherwise he would not have offered me such a price.'



Metal post in fence by roadside near Aviemore containing Crested Tit's nest with six eggs, 19th May 1893. The nest was in the second hole from the top, and was found by Mr. Wm. Evans.

The Crested Tit is resident, and seldom seen outside the pine woods, or where pine woods are mingled with hardwoods, or at any great distance from these. It occurs over an extent of country about thirty miles in length, and varying in width from three miles to ten miles, here and there, over the whole area of the pine tracts of Spey valley, in Abernethy, and Rothiemurchus, and Dulnan, up to the base of the Cairngorms, above Loch Morlich and the Larig Ghrue; and down the valley of Spey nearly to Ballindalloch, where, as we were informed by Sir George Macpherson Grant, it breeds in one locality. Perhaps nowhere is it more abundant than along the banks of the Upper Nethy from Forest Lodge, up as far as the old pine reaches, and from that through the Sluggan Pass of Abernethy into and along Glen More and Loch Morlich side, continuing at intervals down as far as Aviemore, wherever suitable ground and shelter is afforded. They stretch across Spey to the west bank, and over into the old wood of Crannach near Dulnan. They are supposed to be increasing; but increase or decrease must depend greatly upon changes in forest-growth and the amount of old and decaying pine and other timber which remains to afford secure and suitable nesting sites. As early as the days of Latham and Montagu the Crested Tit is quoted as inhabiting the pine woods of Glen More. Gray mentions the county of Ross as affording nest-hold for the species, but we have been unable to obtain any recent data for localities so far out of the Spey valley, and we find that Mr. A. MacDonald, in a letter to Harvie-Brown, dated April 4th, 1871, gives a distinct negative to its nesting in the east of that county, or, according to the best of his belief, anywhere to the north of Inverness. This was at the time he was assiduously collecting for Hancock of Newcastle. An extension into the woods of Cawdor was reported to Lord Cawdor by Mr. Robertson, factor there—successor of the late Mr. Stables, and Lord Cawdor informed Mr. William Reid of Nairn[1] that it was seen near Cawdor Castle lately, a statement which Mr. Reid said is 'sure to be correct.' As yet, however, we have no positive record from the valley of the Findhorn, which lies between the Nairn valley where Cawdor Castle woods are situated, and the Spey, except at the old Crannach woods, above and around Carr Bridge and Dalnahaitnach, at an elevation of some 900 feet. The foregoing refers to its distribution in the nesting season. The autumn and winter distribution is a good deal more general, and a few pairs may usually be found consorting with other members of the genus, but they seldom seem to wander beyond the confines of their native strath.

We have pretty accurately, we believe, written down in our note-books the exact distribution of the colony of Crested Tits in Scotland, and it is not necessary to go into further details than we have already given, but it may interest naturalists of the future to mark if any onward progress be made, and all records outside of the great valley of Spey may be noted as of interest. Edward, when referring to this species as an inhabitant of Banffshire, speaks of it as a native of the 'middle and higher districts,' but this is the only record; and during several years spent in the valley of the Deveron, we have quite failed to obtain any news of its residence there.

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[1] Formerly resident in Wick (see *V. Fauna of Sutherland and Caithness*), and since deceased at Nairn.

We have of late years had numerous opportunities of visiting the nesting haunts of the species in the area described. In 1885, accompanied by the sons of the Rev. W. Forsyth, we visited a nest close to Abernethy, which had young birds, and the same year we obtained hard-set eggs near the same place, which were sent to the Elgin Museum. These nests were in the holes of fir-trees; that with young in a cleft between two dividing limbs of a living pine. A more usual situation is in utterly dead and decayed pine, but we have also seen the nest (1892) in a decayed branch of a living alder on the banks of the river Nethy, where we watched the old birds feeding the young, and another favourite place is the hole in a railway fence post, whether of wood or iron.

The nesting-place figured opposite was found by us in 1892, and as the species is so restricted, though far from uncommon, we may be allowed to speak of this nest at some length, and quote from our journals, written partly on the spot.

'After a long day, starting at about 7 A.M., and reaching the old Crannach wood about 10 o'clock, we reaped our reward—a Crested Tit's nest and five eggs in the decayed stump or stock of an old pine, situated on the eastern face of Cairnouil, a hill rising out of Corour Corrie of the old Crannach wood above Dalnahaitnach. The stump was situated close upon the outskirts of the presently standing timber—a favourite situation. All the wood below had been burned about three years ago when the heather had been set afire. The keeper found the nest first about one o'clock, and shot the two wee birds, a deed we deprecated, yet, as it was the only fresh nest we had ever obtained, we yielded a somewhat unwilling assent; and while we waited at a few yards distance for the old birds to come to the nest, Harvie-Brown made a sketch of the stump and surrounding valley, from which our illustration has been drawn. Not 100 yards from the nest, we found what was evidently last year's nesting-hole in another dead stock, which Harvie-Brown also very hastily sketched; and in the course of the afternoon, Lewis Dunbar, who was with us, also found another old nesting tree, which had a northern exposure, on the same hill. We blew the eggs, and were delighted to find them perfectly fresh (May 11th, 1892). Five eggs appear to be a very usual complement or "clutch." During the same walk we found several old dead pines pierced by woodpeckers. The nest was in a powdery, decayed, pine stump, barkless and bleached. The nesting site faced the east, but the entrance of the hole the south. Upon a basis of powdery dust, the nest was composed of green dry moss, with a superstratum of red deer's hair, many of which animals we have seen during the day. The lining was formed of blue hare's fur. The old nest had also feathers of the grouse in the lining, and tufts of cotton-grass in the structure. Dunbar skinned the two birds at night. The heads were large, and the skin had to be slit at the occiput. Irides, light reddish hazel.'

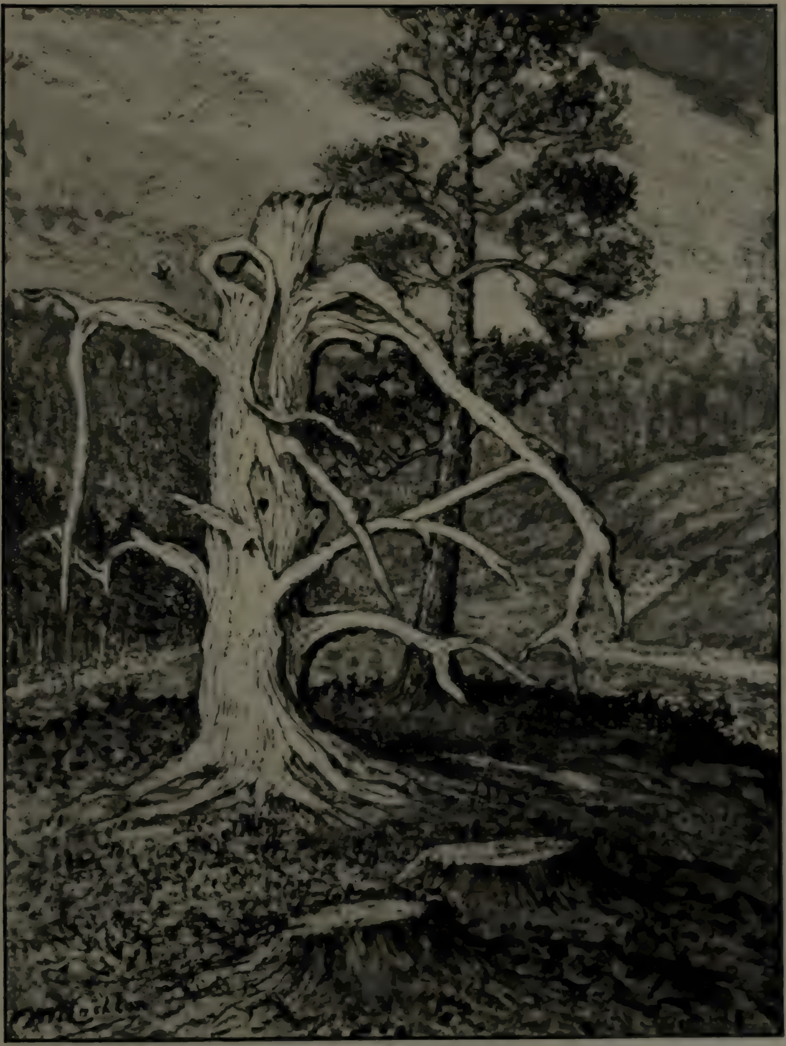
Another nest containing young and one addled egg was found a few days later, in a single upright stock, not far from Loch Morlich, about 4½ feet from the ground—a very usual elevation. The stock was not more than 6 feet high and 9 inches thick, and had no lateral branches, and, like the last, was bleached and barked.

The illustrations given represent some of the sites chosen by the Crested Tit for purposes of nidification.

The Crested Tit often breeds much earlier than the dates of the instances given above, and in 1894 Hinxman found a nest with young nearly able to fly on May 9th; and they often nest in the wildest parts of the forests, on the lower slopes of the mountains.

We have little fear of the Crested Tit becoming rare through man's direct agency, as the area they cover is an extensive one, and to find the nests requires considerable search.

The Rev. W. Forsyth, D.D., says Crested Tits are increasing about Abernethy now (1892). A pair was seen in a clump of trees at Broomhill station last year (1891). In 1892, Lewis Dunbar, who accompanied Harvie-Brown during the latter's visit to that district of our area, pointed out innumerable localities which were occupied by Crested Tits between the years 1847 and 1853, when he was a resident in Grantown; and letters from William Dunbar



NESTING SITE OF CRESTED TITS: DALNAHAITNEACH, 1892.

(*The Tits' nesting-hole is about four feet and a half from the ground.*)

to John Wolley show that eggs were procured for Sir W. Milner at these dates, by his brother, as well as for Wolley.

As this is a British bird with a very limited breeding range, we would take this opportunity of making a few remarks which may not be considered altogether out of place. It is curious to find such marked isolation and restricted dispersal of the Crested Tit. Nowhere in Britain can it be said to have a home, except in Strathspey, and a question of some interest may be thereby suggested.

If, as is probable, the Crested Tit was always a resident species in Scotland, it no doubt at one time covered a much larger area of the old Caledonian forests, and the remnant of to-day may perhaps be considered as indicating a declining race, declining in numbers, or vacillating, restricted in area, and laying a smaller number of eggs than most of our other resident Titmice. On the other hand, if this curious local distribution, and slow rate of increase, if it increases at all, be considered as of later acquisition to our fauna, whence has Strathspey drawn its present population? Let us look at its known distribution on the continent of Europe. Dresser tells us 'its habitat is extensive, ranging from the Mediterranean far into Northern Scandinavia, and from the extreme west of Europe, probably, as far to the east as the Ural'; and that, as with us in Scotland, it principally affects pine woods at lower or higher elevations, and whether on the plains or on the hills. In any case, it is reasonable to suppose that Scotland was either part of a continuous tract which may have been inhabited by the species before the separation from the Continent took place, or have become the scene of a sudden or gradual invasion at some later period. The interest of this does not, perhaps, attach in so marked a degree to the species at present under discussion as to a general principle of laws which may regulate the dispersal of many other species, some of which have of late years increased so much in numbers in Britain, amongst which we may instance the Stock Dove, Tufted Duck, and, in a less patent degree, the Blackcap (as found in the Moray Basin area). At present the Crested Tit is believed to be again on the increase locally, and this may partly be accounted for by the careful system of forestry and the planting of Scots fir, which has been carried on for over one hundred years.

We believe that we have some grounds for saying that in the case of several species which have lately become commoner in the north-east of Scotland, this increase is a direct result of a continental overflow and consequent migration direct upon the coasts of Great Britain, a great migratory 'fan-like' wave, first impinging upon our more southern coasts, with its southern or left wing, as it were, and shortly afterwards reaching its more northerly extensions. But it is only by a careful study of the dispersal of single species under varying conditions that we can expect to throw light upon such questions; and only by large accumulations of statistics and subsequent comparison of details that any natural laws can be definitely arrived at.[1]

In 1893 we did not add much to our previous notes upon the Crested Tit. Mr. William Evans found the nest inside the iron standard or straining-post of a railway fence, and a nest and five very hard set eggs was sent to Harvie-Brown, for the Edinburgh Museum, from a locality near where we ourselves found another nest. The stump of the wooden post of a railway fence containing the latter nest is now in the Edinburgh Museum.

Outside the valley of Spey, yet still within our area, we have, as has been said, scarcely any records. There is a note of one having been seen as low down as Gordon Castle (*Fauna of Moray*, 1844), and a more recent one, viz. 1893, of a pair seen in July by the Rev. Mr. Birnie of Speymouth, who, when driving through the Glen of Rothes, saw 'a pair at close quarters, and could not have been mistaken' (*viva voce* and *in lit.* to Harvie-Brown). Both these occurrences must as yet, we believe, only be considered as 'vagrancy,' or possibly pioneer movements of an increasing species, if what we have related of its supposed increase be correct. If it be desired to artificially aid its chances of increase, we would recommend that lairds who desire it should instruct their foresters to spare the old decaying stocks, and even further assist them by making auger-holes in useless timber. We have done this successfully for other species of Tits.

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[1] In this connection we would desire specially to direct attention to our articles upon the following species as illustrating our views, viz.:—Crested Tit; Marsh Tit; Great Spotted Woodpecker; Honey Buzzard; Stock Dove; Sandwich and Roseate Terns; and a few others. We have specially and exhaustively, we think, studied the subject of the dispersal of the Stock Dove, Starling, Tufted Duck (*Annals of Scottish Natural History*, 1896), and several other single species, with a view to arriving at some general law of dispersal.

Having thus spoken of this excessively local species, which we believe to be peculiar to our present area as a breeding species, we may perhaps be pardoned for adding the following remarks as to its supposed distribution in other parts of Scotland, if only to direct more careful attention to these statements for future approval or disapproval.

By Mr. A. G. More's paper upon 'The Distribution of Birds in Great Britain during the Nesting Season' (v. *Ibis*, 1865), we find that the author of this most useful paper—though now somewhat out of date—ascertained from Sir William Jardine that 'the Crested Titmouse annually breeds in some plantations near Glasgow.'

We cannot agree to this. '*Plantations* near Glasgow' is a definite description as regards growth and age of wood, but not definite enough as regards locality. We possess no other statement of the Crested Tit *breeding* anywhere amongst 'plantations' or elsewhere south of Strathspey, except one, which we think we have already disproved (vide *Vertebrate Fauna of Argyll*, p. 64). Nor do we credit the account, given long ago, of Crested Tits seen in the Pass of Killiecrankie in Perthshire (or Province XXIX. of Mr. A. G. More's paper), on the authority of Mr. Bigge when in correspondence with (we presume) M'Gillivray in 1837. That it strayed occasionally south of its breeding limits may even be doubted, but the fact remains, as the author of the first volume of the fourth edition of Yarrell's *British Birds* says, in regard to reported occurrences in England, 'Many of these cases, on inquiry, cannot be substantiated' (*loc. cit.* p. 52); and the same remark may be held to apply to many of the records which are given north of Tweed.

Family **TROGLODYTIDÆ.**

Troglodytes parvulus, *Koch.* Wren.

Local Names.—Wrannie, Vran, Jeannie (in Keith), Thumb Wren (Gregor).

Resident and abundant everywhere about cultivation, and even up to the very heads of the burns. Though the Wren is not generally sociable, St. John mentions having seen eleven together.

In the nest of one near Invergarry, Murdoch Matheson found a small silver ring, which appropriation seems less like the freak of a Wren than of a Jackdaw.

South of Inverness the Wren is perhaps most abundant in juniper tracts, but it is common everywhere, even far above the highest straggling birches, and even in places above the growth of heather. It is prominent far up among the trickling source-streams and among the screes and stony scaurs of the Carn district, down to the coast-line, where it appears slightly more abundant in winter, often feeding amongst washed-up tangle, and sheltering in the deep crevices of rocks, and the dens which cut down to the precipitous coast around Gamrie Head and along the north coast of Aberdeenshire in the eastern part of our area, and the same remarks as to its general abundance hold good over nearly the whole watershed and drainage system.

Mr. J. Backhouse writes:—'In Allt-an't-Sluie valley I saw a very fine specimen—very large and well marked. Probably had I been able to 'collect' it, it might have turned out to be *T. borealis* or *T. hirtensis !*, but unfortunately I did not prove it.'

On the 1st August 1887 the gamekeeper at Blairs Castle shot a white Wren, but it was too much shattered for preserving. This was the only one of that colour he had ever seen.

Family **CERTHIIDÆ.**

Certhia familiaris, *L.* Creeper.

Local Name.—Woodpecker.[1]

The Creeper is a widely distributed, though not very abundant species, being found as far up the glens and straths as there are trees of sufficient size to afford it feeding-ground. From Invergarry it is reported as occurring 'in numbers' from notes sent us by Mr. Malcolm,[2] and it is common throughout the whole of our northern area as far as the birch woods extend up the Helmsdale strath. At times these birds assemble in small flocks of from a dozen to twenty, as two of our correspondents have informed us; one such flock was seen at Kintradwell near Brora, the other at Inverness.

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[1] *N.B.*—We have carefully considered this confusing cognomen, and have not allowed ourselves to be led astray by it during our researches into the past history of the true *Picus major*—the Great Spotted Woodpecker, *q.v.* Though erroneously called 'Woodpecker,' the name is only applied to it by the younger generation, and we have hardly ever found old people confusing the two species.

[2] Son of Mr. Malcolm, factor for Invergarry.

Our earliest available positive record south of the Great Glen is supplied by Mr. Hoy's valuable MS. notes. He tells us:—'One found dead in a room being newly fitting up at Gordon Castle, March 29th, 1814.'

The Creeper is found in all fir and oak and mixed plantations, and all the wooded parts of our area; nesting in old pines in the Scots-pine areas (as noted by Stewart of Grantown), but perhaps more abundant where the mixed woods occur, such as at Darnaway on Findhorn and around Forres as far up as Tomatin, 900 feet and probably higher, where it is quite common. It is abundant in various localities in Speyside, and is common as high up as Beldornie on the Upper Deveron, though not seen by us personally so far up.

Family **MOTACILLIDÆ.**

Motacilla alba, *L.* White Wagtail.

North of Inverness we have no notice of this species. Booth saw them on the river Ness, but not farther inland than the town of Inverness.

Motacilla lugubris, *Temm.* Pied Wagtail.

Local Name.—Watery Wagtail.

Although mostly a summer visitant to the north of our area, the Pied Wagtail remains not uncommonly all the year round, the banks of the Ness being a favourite locality, probably because that river remains open in the hardest weather. The time of its arrival varies with the season; thus the bird was seen at Invergarry in 1887 at the end of February, but it is generally much later at these inland places, the sea-shore being a more favourite locality during the winter. It is found about Tain throughout the year, but a correspondent says it is more numerous there in summer than in winter.

South of Inverness the species is resident, or partially migratory from its highest haunts to the low grounds in winter; scarcer in winter all over the area, and it is probable the young all migrate. It is stationary in the Laigh of Moray (Rev. George Gordon): 'Frequents the margins of streams, ditches, pools, and lakes, and in dry pastures and stony places' (Brown). It is usually abundant about Dalwhinnie in the end of July—*i.e.* the beginning of the autumn migratory season (see Marsh Tit)—as also in Upper Badenoch, where, however, it is known to breed not uncommonly, though more numerous there in the early migratory (autumn) season.

In 1893 this species was apparently more numerous than previously at many localities, especially in the Carn districts and on the higher reaches of the Deveron and Spey tributaries—an increase no doubt observable very generally over the area. Hinxman noted several pairs as high up as Inchrory on the Avon.

Motacilla melanope, *Pall.* Grey Wagtail.

North of the Great Glen this species is widely distributed, but not very abundant, a few occurring during the winter months in localities near the shore. They are common in summer about the rocky parts of the rivers and burns of the East of Sutherland, as, for instance, on the Brora and Helmsdale rivers and the Lothbeg burn. After the severe winter of 1878-79 this species was not so numerous as before on the Brora river. Mr. A. Craig remarks that these birds were 'not so plentiful of late' (1882) in the neighbourhood of Glen Urquhart, after the two severe winters of 1878-79 and 1880-81, and Hepburn never met with it at all when he was exploring the north of Inverness-shire in 1847.

In the districts to the southward of Inverness the Grey Wagtail is even more abundant than the last-named species. It is very abundant indeed on Spey, Fiddich, Avon, and minor streams of Spey valley, reaching far up the streams, but becoming less common beyond the growth of wood on the banks. We observed it all through the reaches of Deveron and the Carn districts where birch occurs along the streams, and a few pairs even higher up. It is common along the sides of the forest lochs, such as Morlich, Loch an-Eilein, Loch of Garten, Loch Moy, and even at the bleak Loch an-Dorb, where there is a mere patch of wood round the shooting-lodge. It is seen occasionally in all seasons in the Laigh of Moray, and along the lower courses of the streams in winter, though no doubt the bulk are migratory.

To illustrate their abundance, we may say that careful attention to their distribution in May or June along the river Deveron convinced us that about one pair is to be found upon every mile of river, which on the Deveron alone would give a total of about forty-five to fifty pairs, deducting about five miles of the very highest reaches. Brown considers that it disappears from the Forres neighbourhood in winter. In 1852 Edward speaks of it as a 'very scarce bird' near Banff (*in lit.* to Professor Newton), he having found only one of their nests that year, but in a later letter to the same gentleman he mentions having walked over a hundred miles and seen 'many Grey Wagtails.' Perhaps nowhere have we found them more abundant in Scotland than on the Deveron and Fiddich in 1884-85, 1890, 1894, but scarcer in 1895.

In Upper Badenoch Mr. C. H. Alston found a few pairs (probably in about the same proportion as we have observed elsewhere), and 'later, several families were seen in August.'

In 1893 either very large additions were made to their numbers, or on the lower reaches of the river Deveron near Turriff there had been always larger numbers. We have said that the other reaches from Corniehaugh up held one pair to every mile of water, but about Drachlaw and Netherdale, and lower down, we cannot be far wrong in fixing the numbers at not less than three pairs to the mile—believing that to be a very modest computation. By May 8th, young Grey Wagtails were on wing, and the parent birds preparing and laying again. Hinxman found several pairs nesting as high up the Avon as Inchrory, but we did not find any patent increase on Upper Deveron in June.

[Motacilla flava, *L.* Blue-headed Wagtail.

St. John, at page 311 of his *Natural History and Sport in Moray*, says:—'There is another species (of Wagtail), not much known, named the *Motacilla flava*, differing from the last in having the head of a blue-grey colour. I have never killed this bird, but have little doubt that it might be found.' Mr. Millais has informed us that the only rare bird he ever shot on the shores of the Moray Firth was a female Grey-headed Wagtail, which was procured about five miles from Fort George on August 1st, 1891.]

Motacilla raii (*Bonap.*). Yellow Wagtail.

Booth mentions having met with the Yellow Wagtail both in the Fendam district, east of Tain, and also near Inverness: we ourselves have never seen this bird, alive or dead, north of the Great Glen.

St. John says that the Yellow Wagtail is much rarer than any other species of Wagtail, and he has only seen it two or three times in the county (of Moray).

Edward considered this species as 'only occasional.' He speaks of it, however, as breeding plentifully on the Aberdeenshire coast of the 'Dee' area between Don and Newburgh, and again between Fraserburgh and Peterhead, and it is satisfactory to know that Mr. George Sim has verified these observations.

As early as 1835, Foljambe observed it at Grant Lodge. A specimen is in the Banff Museum, and another in the possession of Mr. Lennox, birdstuffer, Banff.

Anthus pratensis (*L.*). Meadow Pipit.

Local Names.—Titlin (Dr. J. O. Wilson), Cheepert (J. G. Phillips).

This is an abundant species, widely distributed throughout the north of our area, and mostly resident. Moors with a certain amount of moisture are more frequented by the Meadow Pipit than the drier ones; indeed, they seem to prefer moist ground of any kind to very dry localities. On the hills beyond Invergarry it occurs commonly, and also at Guisachan, especially high up the glen.

South of the Great Glen the Meadow Pipit is resident, and though in most places generally distributed and abundant, yet in some tracts of country singularly absent or scarce—perhaps owing to the want of water. They are very common along the river-banks in May—no doubt owing to the dry nature of the hills around. They are commoner on the middle reaches of Deveron and about Dunbennan Hill above Huntly than elsewhere on the upper and middle reaches, so far as we could judge. Not abundant about Tomatin on Upper Findhorn, but common about Tomintoul on the Avon, and in Glenlivet; also around Dalwhinnie and Upper Spey, Lochaber and Badenoch. In July they are perhaps most frequently to be found in the open moory and heathery gaps in the pine forests of Spey, settling very frequently on the deer- or other wire-fences. Hinxman reports it as common everywhere throughout the areas visited by him, and Dr. Gordon speaks of it, 'Common, but especially on flat, moorish ground.' 'Very numerous' in Upper Badenoch (C. H. Alston).

In 1893 they were observed to be more than usually abundant on the Cabrach reaches of the Deveron. This, we imagine, was owing to local causes, the great and long-continued drought upon the hill-land having driven them to seek for water by the river-sides. The hills upon the right bank of the Lower Cabrach valley are, even in normal seasons, not particularly well watered. In the same season, in Glen Avon forest, Hinxman found the Meadow Pipit on the summit of Cuaip a Chleirich (3700 feet) on July 3rd.

Anthus trivialis (*L.*). Tree Pipit.

In reference to its occurrence in Sutherland, where it is rare at all times (*Fauna of Sutherland and Caithness*, p. 118 *), we may add that in 1892 the Tree Pipit was quite absent from the neighbourhood of Brora, as reported to us by Mr. Baillie. It was first found breeding in that county in 1875.

Booth says that the Tree Pipit is numerous in Moray and Ross, especially where moderately old Scots fir exists. This certainly has not been our own experience. We have always, so far as our memory goes, found this species haunting birch-trees, sometimes at a considerable elevation, and in isolated clumps at some distance from any large wood. The species is by no means rare in Inverness-shire, indeed quite common, and we should say that no strath containing any growth of birch is without a pair or two, so widely distributed is it. At Invergarry we were told by Matheson that the Wood Lark was common there, but this, on investigation, we discovered to be the Tree Pipit—a by no means unlikely mistake to be made by a lad who had had no ornithological training. It is quite common at Guisachan. In another note by Booth, in the Dyke Road Museum Catalogue, he says he never met with the

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* Vide *Annals of Scottish Natural History*, July 1892, p. 159.

Tree Pipit north of the forest of Glenmore, where, in 1869, he found numbers breeding.

St. John does not mention this species at all.

Edward says, 'frequently seen,' and breeds near Inverkeithney, Rothiemay, and Inveravon, but it is not represented in the Banff Museum, nor does Rev. J. Smith mention it. Dr. J. O. Wilson obtained a nest and eggs in 'The Plantin',' near the Meadow Well at Huntly, and Harvie-Brown saw the eggs. We met with it at Aberlour on Spey in 1885, and Mr. J. Young saw it near Forres in the same summer. Hinxman describes it as 'not common; local.' The Tree Pipit occurs in Abernethy Forest, where Stewart of Grantown has obtained eggs, which we saw in 1892—the red variety. William Evans once saw it at Kinrara on Spey (8th August 1889), possibly on migration, and Mr. J. Backhouse found one crushed into a joint between two rails on the railroad near Dalwhinnie. The skull and claw were hanging out uninjured, by which he identified the bird.

Now, a more unlikely locality for the Tree Pipit than Dalwhinnie could hardly be imagined. Certainly, if they occur there at all, it can only be on migration, and we know *past Dalwhinnie is a highway of migrants.* Gray says vaguely:—'On the east coast this Pipit seems equally dispersed over the sea-board counties from Berwick to Banffshire' (1871).

Mr. Rose of Holm-Rose considers it to be a decreasing species. Booth found these birds abundant in the pine forests of Spey. Previous to 1893 a most careful search on our part never disclosed a single bird in the pine woods, and indeed we should hardly expect to find them actually frequenting pine woods,—though where hardwoods or clearings occur, one might expect to meet with them. But so in 1893 it appeared abundantly, or at least much more conspicuously than during our experiences in past seasons over all the clearings in Rothiemurchus and Abernethy forests; and more than one pair were seen at Drachlaw and Netherdale in May. It was also observed far up the Spey by Colonel Duthie, by William Evans, and was reported by other correspondents. It had not, we fully believe, been so commonly observed in our present area before. Indeed, this season seems, with its phenomenal heat, and drought, and earliness, to have heralded a considerable increase in many species. Hinxman found one pair constantly in the birch woods at Inchrory on the river Avon, at a height of 1450 feet, and he also found them crossing over the watershed into the Don valley at Delnadamph (Dee).[1]

[Anthus richardi, *Vieill.* Richard's Pipit.

Obs.—Edward claims to have *seen* this bird '*only once*,' at the foot of the Knock Hill of Banff. Needless to say such cannot be accepted as a record.]

Anthus obscurus (*Lath.*). Rock Pipit.

In winter the Rock Pipit is found almost everywhere along the shore, but in the breeding season it betakes itself to those parts of the seaboard which afford it nesting ground, such as cliffs, or even banks of a very moderate elevation, when such are covered with long grass.

Dr. Joass sends us a note of a nest that was found just below the muzzle of one of the cannons at the Dunrobin battery, immediately after artillery practice, on May 4th, 1894.

On the south shores of the Moray Firth the Rock Pipit is equally abundant everywhere along the shores, seldom or never going inland, but breeding on the rockier portions, especially along the cliffy coast between Hopeman and the Covesea shore, and again along the Gamrie and North Aberdeenshire precipices. We cannot find any data indicating either increase or decrease as far back as our records go.

Family **LANIIDÆ**.

Lanius excubitor, *L.* Great Grey Shrike.

This species is only an occasional visitant to our area. On two occasions we have ourselves seen it in the neighbourhood of Brora, once in 1870, and again a few years later. One was shot at Meddat, Ross-shire, in December 1861. Another was obtained at Morvich, Sutherland, by Mr. Murray, on January 6th, 1893. A bird of this species was shot at Glenmoriston, on Loch Ness, in November 1843 by Mr. Birkenshaw, gamekeeper to Sir H. Meux, Bart. (*auct.* W. Snowie, Inverness, *Fauna of Moray*). St. John met with the bird only once, and that as long ago as 1845.[1] Two were sent in from Craigellachie to Inverness for preservation, the first in January 1857, the second in 1862.

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[1] Curious it is to find, however, upon the excellent authority of our friend Mr. George Sim, that the Tree Pipit does not appear to have penetrated nearly so far up the valley of the Dee, nor to occur, except very locally. Mr. Sim says :—'It is local in its distribution, and I know of it only in the woods round Aberdeen' (*in lit.* 25th August 1893).

South of Inverness the earliest record we can find is one by Mr. Hoy in his MS. notes, viz., 'one shot by Sir Robert Sinclair at Gordon Castle, December 30th, 1793; and another was shot by P. Collie (head keeper) at Gordon Castle, March 19th, 1825.' One, now in the Elgin Museum, was presented by the Rev. C. W. Barclay of Easter Calcots, where it was killed in 1836.

Mr. George Sim has obtained the Great Grey Shrike from the very edge of our district; and Dr. J. O. Wilson says:—'I saw a bird in the upper bog of Buchan, which, I am inclined to believe, was a Great Grey Shrike.'[2]

Two of these birds were seen, and one killed, on the south side of the town of Forres on January 2, 1860, and sent to Dr. Gordon by Mr. Innes, who says:—'In the hedge from which they rose was found a Robin, stuck on a thorn, with its head off.' Another was killed at Braemorriston, near Elgin, February 1866.

There would almost seem to be a regular (or irregular) fly-line of this species into the Moray Firth, touching land about the Laigh of Moray. Thus in 1889-90 Butcher-birds were common—'plentiful'—about Forres. One was shot at Burgie, near Forres, 25th November 1889, and also one at Cullen; another on 10th November 1889—an adult male—and yet another on 1st February 1889, both near Forres, and both males. In 1892 one was handed to Mr. R. Thomson,[3] Ferness, for identification, by Mr. Sexton, on

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[1] *Wild Sports of the Highlands*, p. 73.

[2] Some naturalists consider this is not the place to discuss the occurrences of rare species close to, but not in, our area, but we are not, we believe, singular in our belief that they are of unusual importance in connection with the principal aim of these volumes, viz., to get at the minute distribution, movements, and accredited 'fly-lines' of migrants; and even with regard to the commoner species, to shortly indicate the distribution upon the extreme borders of our areas.

[3] Mr. R. Thomson, schoolmaster at Ferness, on the Findhorn, in the parish of

25th April, which was shot in one of the Glenferness woods, and the female was seen about the mansion-house three weeks later.

[Lanius collurio, *L.* Red-backed Shrike.

The Red-backed Shrike is stated to have been killed in Castle Grant woods, on the authority of Mr. J. Webster in Dr. Gordon's *Fauna of Moray.*]

Family **AMPELIDÆ**.

Ampelis garrulus, *L.* Waxwing.

The Waxwing is a rare bird north of the Ness. Two are recorded from Sutherland (*Fauna of Sutherland and Caithness*, p. 120), and since then another was obtained by Mr. G. R. Lawson[1] on January 27th, 1893, as it was feeding on the berries of a cotoneaster in his garden at Golspie.

Captain Stirling writes us that a Waxwing was killed at Fairburn in 1875.

We are indebted to Mr. Hoy's notes for an early record of this bird south of the Ness. 'Two were shot at Gordon Castle, December 29th, 1809. A good many were seen for some days past, but never observed here before those shot by the Duke (Duke Alexander), as well as the following' (*i.e.* Crossbill, *q.v.*).

St. John mentions the Waxwing, but gives no date of where he observed the bird. One was shot at Abernethy in 1860, another at Nairn about Christmas 1881, by —— Gordon, Esq. Gray talks of them as occurring occasionally in flocks in Morayshire.

Dr. Gordon records in the latest edition of his *Fauna*:—'Waxwing very abundant; large flock in January 1869; two at Aldourie, Lochness; four seen and two killed at Glenferness, Findhorn; two killed at Dalvey, near Forres; four seen same day at the distillery at Forres; one at Elgin; a flock at Innes House, five miles east of Elgin' (as originally recorded in the *Zoologist*, p. 2769).

Ardclach, one of the many men who have been directly influenced and interested in natural-history pursuits, by the kindly and earnest tuition of Dr. George Gordon of Birnie, and to whom we have been introduced, and who has greatly assisted us in his district. Mr. R. Thomson is a good entomologist and botanist.

[1] G. R. Lawson, Esq., Town and County Bank Agent, Golspie.

In 1844 it was reckoned a rare straggler. One was killed about ten years previously at the Knock of Alves, by Mr. G. Taylor (*Zoologist*, 1850, p. 2769), and another in Strathspey in December 1859 (v. *Inverness Courier*).

There is evidence of their occasional occurrence as early as last century, viz., about 1790. Sir A. Dunbar of Northfield—father of Captain Dunbar-Brander of Pitgaveny—saw them occasionally, or about once in two or three years (Captain Dunbar-Brander, *in lit.* 1st September 1891), and Rev. W. Forsyth, D.D., has known of their occurrence in the parish of Abernethy.

In 1866 one was killed in the parish of Auchindoir, in the Bogie valley, and sent to Mr. George Sim for preservation. In the *Scottish Poultry Journal* of March 17th, 1893, there is a record of a specimen of the Bohemian Waxwing, which was picked up on the shore at Pennan, by Mr. Robert Gault, Birnie, and sent to Mr. Lennon, naturalist, Banff, for preservation, so that our area, at least to that extent, participated in an invasion of this species, of which various other records are given in the *Annals of Scottish Natural History* for April 1893, *q.v.*

Another was found dead in a small birch wood, well known to us, close to Ardwell, and on the farm of our landlord, Mr. William Watt. It was exhibited at a meeting of farmers at the schoolhouse the same day, and is now (July 1893) in the possession of Mr. Archibald, farmer, Park of Brux, near Rhynie. Wm. Brown of Forres has reported (*in lit.* May 1895) another which was shot at Fochabers in January; but it was too much destroyed by shot to be worth preserving.

Family **MUSCICAPIDÆ.**

Muscicapa grisola, *L.* Spotted Flycatcher.

To Sutherland and E. Ross-shire the Spotted Flycatcher is a common summer visitor, more especially frequenting the old birch woods that line the middle banks of the Helmsdale and the Cassley. In the latter locality they were abundant in 1886.

Hepburn, writing in 1848, remarked of this species that it was more abundant on the shores of Loch Ness and a few miles up the Beauly river than he had observed elsewhere in Scotland. Twenty years after that Booth considered it comparatively rare in Inverness-shire and Ross-shire. Our own experience is that it is a very common bird throughout the whole of the district under consideration, old birch and alder trees being particularly affected by it. One pair had their nest on a ledge in the porch of the front door of a house occupied by us close to Inverness; though not disturbed, the birds did not return the next season.

The Flycatcher is generally considered a very silent bird. Mr. J. Young (London) has sent us the following note:—'A Spotted Flycatcher came and settled within three or four feet of me; it commenced a low inward warble, as if singing to itself. Its head feathers were erect, and it moved its head about like a whitethroat. I listened to it for some ten minutes or more. Sometimes it would break off and catch a passing fly. The song was so low that I don't think I should have heard it at a distance of ten yards' (J. Young, *in lit.* 24th September 1892).

In the southern portion of our area this summer visitant is very abundant, and has probably increased largely of late years. It is subject to considerable variation in numbers according to the season.

The earliest record from the Deveron valley is by Edward, who claims to have met with it twice 'in wild rocky glens.' It is not included in Smith's lists. It was discovered by Foljambe at Grant Lodge, Elgin, where by 1844 it was 'a regular summer visitor'; two pairs hatched their young there in 1828. Brown of Forres writes us of this species:—'Arrives from the middle to the end of May, and departs in the beginning of October. It is generally distributed, frequenting plantations, low bushy hollows, orchards, and gardens.' We ourselves have met with it commonly at Dalwhinnie (1881), and Backhouse frequently found it in the wood there in June and July 1885. But it is not accounted as common by Mr. Stewart at Grantown, nor did we ourselves observe it there in great numbers in 1891 or 1892.

The Spotted Flycatcher certainly appears to be a spreading species, or at all events appears to be commoner in some seasons than others, at certain localities, which in our opinion is indicative of progress or active dispersal. It must be remembered that this and many other species are more conspicuous in the early autumn months, but we speak here apart from that fact.

It was not very abundant at Aberlour in 1884, but very plentiful—old and young—along the outskirts of thirty- to forty-year-old pine woods in July 1892, and still more abundant in opener localities, a month earlier in the same year; exceedingly common in July between Lynwilg and Kincraig, and in the birch-woods of Glen Tromie in August 1891. In 1892 a few pairs were observed by us for the first time, during three years' trout-fishing at the same spot, at Lesmurdie in Upper Deveron. It is common in all the larger and better wooded valleys and principal glens, but as yet rarer in the higher glens—'glacs,' or 'slochs,' of the Carn districts, and proportionately in the smaller 'dales'—'dells' and 'dens'—of the coast east of Banff. William Evans, in June 1892, found only one pair at Dalwhinnie. Mr. C. H. Alston considers it rare in Upper Badenoch (1890).

In June 1893, we, for the first time during several successive seasons, found one pair, just within the limits of the Upper Cabrach, in a spot where they could scarcely have escaped our notice in previous years had they been present, as we were constantly in the habit of fishing that particular reach of the river Deveron. We again saw also several pairs at Lesmurdie, in Lower Cabrach reach of Upper Deveron. It was very abundant all through the lower grounds and the Laigh of Moray. Hinxman saw one as far up as Inchrory, on the Avon, in June, but he is uncertain whether it nested or not. In the end of July 1894 we again found a pair about 100 yards below the spot which we had found frequented by them in 1893, close to the bridge on the lower confines of the Upper Cabrach.

Muscicapa atricapilla, *L.* Pied Flycatcher.

Though not occurring regularly every year, yet the Pied Flycatcher is often found on both spring and autumn migration at the Pentland Skerries, and records of its appearance in the North go back as far as 1809, when Messrs. Baikie and Heddle recorded it from Sanday in Orkney. It is most probably from this great highway of migrants through the Pentland Firth, that they visit the Sutherland portion of our area, where we ourselves first noticed one in a burn some eight or nine miles from Brora on May 27th, 1872, and the specimen is now in our possession. The next notice of it was in 1881, when Mr. Houston saw a pair at his residence of Kintradwell, and others were found near Tain about the same time.

No suitable place appears to have been found by it in these counties for breeding purposes; but the Great Glen, which would appear to be another of its migrational routes, afforded it such a site, for Hargitt[1] had eggs from Drumnadrochit, in Glen Urquhart, as far back as 1864.

But the species does not seem to have permanently taken up its abode here, for such a conspicuous species would surely have attracted the attention of other wandering naturalists, such as Muirhead or Mr. A. Craig. Anyhow, it was not until nearly thirty years after, that we received information of such a bird being seen in another locality, and that it had even bred there. On our making inquiries on the spot, we were shown an egg that had been taken by a correspondent, who described the bird to us, and also stated that it bred in a hole in a birch-tree. The next season the birds did not appear, at least at the old site; in 1894 we received the eggs, four in number, and a note from our former correspondent saying that the nest was built in a birch-tree about ten feet from the ground; it was composed of moss and lichens and with a little cow's hair, and was in the same place as the previous nest.

The first year the birds were seen there was in 1890, but in 1893 they did not nest, though they did so in 1891.

Family **HIRUNDINIDÆ**.

Hirundo rustica, *L.* Swallow.

Though widely distributed, the Swallow is by no means a common bird, only a pair here and there being found as a rule. They are perhaps more common about the cultivated area of the east of Ross-shire than elsewhere in the northern part of our area, probably on account of the greater abundance of open sheds, on the beams of which they delight to build. Hepburn met with the three species of Swallows in 1847, and remarked that they were generally distributed. They occur at Invergarry.

We once observed a pair of Swallows building in a shed near Scotsburn in the east of Ross-shire, and we made the following notes:—The nest was begun on August 1st. By the 6th it was finished and the first egg laid; the fourth and last was laid by the 9th. On the 26th the eggs were hatched (one was addled), *i.e.* fifteen days after the bird began to sit. One young bird flew from the nest at 2.30 P.M. on September 12th, and the other two had departed by 5.30 P.M. the next day.

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[1] Edward Hargitt, R.I., M.B.O.U., died March 19th, 1895.

In 1893 no Swallows were seen about Brora (W. Baillie). The *O.S.A.* has several entries of its occurrence in the parishes of Kirkhill, Rothiemurchus and Duthil, Grange and Mortlach.

We do not find the Swallow common now at Dalwhinnie, nor at Findhorn Bridge near Tomatin, in July, and decidedly local on the Dulnan. We saw six or eight pairs hawking over the meadows by the river-side, at Benanach farm, above Carr Bridge, but generally in the upper districts it is certainly not abundant, and very local. It is, however, abundant at Forres, and Elgin, and the Laigh of Moray, 'arriving,' says Brown, 'about the 15th April and departing in September.'

Chelidon urbica (*L.*). House Martin.

North of the Great Glen the House Martin is more numerous perhaps than the last species, though possibly quite as local. In the *Annals of Scottish Natural History* for July 1892 we recorded a place called the Green Table near Helmsdale, as a place where Martins breed, but Mr. Baillie informs us that in 1891 only one pair bred there. At Tain they are said to be less common than the preceding species, as they certainly are farther north, and our own experience of the east of Ross-shire bears this out. A few are always to be seen under the Suspension Bridge in the town of Inverness, where they probably breed. Another place where these birds nest in numbers, according to Mr. A. Craig, is Urquhart Castle, 'chiefly amid the battlements on the top of the old tower.' Hugh Miller, when writing an account of the parish of Cromarty, speaks of a 'colony of swallows (Martins) having built from time immemorial in the hollows of one of the loftiest precipices of the romantic Burn of Ethie.' This was in 1845. Booth found them breeding in the Cromarty cliffs in 1869, and got birds and nest from there.

Mr. Malcolm records them as being common at Invergarry.

Albinos are not very common. One was sent to Snowie for preservation in 1882.

At the small wayside inn of Altguish, on the road between Garve and Ullapool, we were astonished to find a fine colony of House Martins nestling under the eaves. It was a most desolate place, not another house within sight, and we should think the landlord must have welcomed the cheery little birds as good company in his lonely habitation. This is the only considerable colony we have seen in the north.

House Martins, usually only a single pair, have a curious habit of suddenly appearing at odd places, often quite in the middle of the breeding season, remaining a day or two and then disappearing. During this time they will flutter round the windows or under the eaves, as if they were prospecting for a nesting-place, and even begin the foundation of a nest. We have seen this both in Sutherland- and Inverness-shires.

South of the Great Glen this summer visitant is somewhat locally distributed and shifty; locally abundant one season, and utterly absent from the same spot another. They often shift their nesting-sites, and the reasons for their doing so are not always clear. At Dalwhinnie, Martins were unusually abundant during the cold summer of 1881, and at the same time we find it recorded by Mr. Southwell of Norwich that there was an unusual scarcity of Martins in Norfolk and an unusual abundance of Swifts. The Martins, which formerly bred under the projecting eaves of the hotel at Dalwhinnie, during that season almost utterly deserted these old haunts, and removed to the same *locales* under the eaves at the railway station; and a pair or two have this year occupied similar positions in Loch Errochd Lodge, seven miles up Loch Errochd.

Edward also speaks of their breeding on cliffs on the Banff coast. In 1885 we first observed Martins at Aberlour on Spey on May 5th, but they were not seen about Forres in May at all that year, though they appeared to be pretty common in other localities. Evans failed to see anything of Martins or nests or eggs in July and August 1889 at Kingussie, Grantown, Carr Bridge, and other likely places, where they have been observed in other seasons. One year we found them abundant in June at Dunphail Station (we think 1881), but the next year not one at the same date, nor during the season, as we were informed by the station-master as we passed on our way south. Evans found some nesting again at Dalwhinnie in June 1892, but they were decidedly scarce that season over all the ground Harvie-Brown traversed on Speyside and on Deveron. We found them common at Findhorn Bridge early in July, nesting below the girders of the bridge, and also in the eaves of Dell Cottage, where we resided for a week.

While the numbers of the Martin thus depend apparently upon the seasons, they are also found during some years to ascend to much higher elevations—for instance, among the hills and farmhouses of the Carn districts,—and at others to confine themselves to the more sheltered valleys.

In 1893 Martins suddenly appeared at Drachlaw, on the Lower Deveron, upon the 29th of May, and were seen at our windows; but only during the morning hours, or up to about 10 A.M. They were probably only prospecting. We cannot recollect seeing any Martins that year on any previous date. A day or two later they visited the windows for a short time between 2.30 and 2.45 P.M. We were confined to the house with asthma, and had perfect opportunities of observing them.

Cotile riparia (*L.*). Sand Martin.

Local Name.—San' (*i.e.* Sand) Swallow.

The commonest of all the Hirundinidæ in the north, and the first to appear in the spring. The first place we have noticed them in the spring has been on the river Ness, and they have a nesting-place two or three miles up the river. There are few places we have visited in the out-of-the-way glens and straths where we have not seen the Sand Martin, often the only one of the genus, as at Guisachan, for instance, though we did not actually find them breeding there. They occur also at Invergarry—indeed, at all places from which we have received notes.

As in the north, so in the south of our area, the Sand Martin is the most abundant and generally dispersed of all our Hirundinidæ, swarming all along the valleys, according to suitability and capacity of the nesting banks, but varying appreciably according to the seasons. It was not observed on the Deveron in its upper reaches, say above Beldorney, either in July 1891 or August 1892. They swarm in May in the sand-banks of Speyside below Craigellachie, and up the Spey, through the strath, to Kingussie, but are less common or abundant in Badenoch, though they have been observed as high up as Dalwhinnie in June. Although not noted at Tomintoul in April or May, numerous localities are given on Avon, Fiddich, Feshie, and Tromie.

In 1893 we found small colonies as far up as Ardwell in the Lower Cabrach valley, where, however, we had not noticed them before, and they were again seen at the same places in 1894. An immense colony frequents the Red Brae of Lower Findhorn—*i.e.* in steep sandy and clayey cliffs about 2½ miles from Forres. They occur in myriads about Tomatin on Upper Findhorn in July, and are abundant on Dulnan. They abound all along Speyside in the red sandstone scarps capped with gravel and sand, and in the river banks lower down, where there is a fine colony near Fochabers Bridge.

We find our earliest record of their spring arrival—viz., 14th March 1880—given by Mr. Norman, in the *Fauna of Moray*. Brown of Forres says:—'Very abundant about Forres, arriving sooner and departing rather sooner than the Swallow and Martin. Other dates of arrival vary a good deal, but April 23rd is about the average date in ordinary seasons.'

Mr. Lee informs us that he found a very large colony of these birds breeding near Forres. He counted 823 inhabited holes, mostly with young. Below the nests were thousands of moths and butterflies' wings, and also bees' wings. 'I watched one hole, and, as far as I saw in the short time I was there, the birds visit the hole twice each in a minute, sometimes only once, and sometimes three times' (O. A. J. Lee, 8/viii/87).

Family **FRINGILLIDÆ**.

Sub-family *FRINGILLINÆ*.

Carduelis elegans, *Steph.* **Goldfinch.**

This beautiful bird is probably extinct in the northern portion of our area. All our old records point to its being a common species at one time, but that was certainly previous to the last thirty years.

We have very few records from Sutherland. St. John saw it there, and in his book on Morayshire he says that, though it was nearly extinct it was common on the opposite shores of Ross-shire and Sutherland. It used to breed about Dunrobin and

Dornoch, and we have an egg in our collection stated to have been taken in the county.

In looking through Macleay's ledgers, in every instance where the Goldfinch was entered it proved to be a cage-bird. In the *Statistical Account*, 1794, vol. xii. p. 274, the bird is stated to have been abundant in Ross-shire.

The late Dr. Aitken informed us that it used to be found not uncommonly in the neighbourhood of Inverness, but, *in lit.* 8/iii/86, he said it was then very rare, if not extinct; his sons had only once found the nest there. Mr. Jennings says that about Tain he was informed it was formerly common; now, he thinks he may say, it is extinct. At Guisachan the late Lord Tweedmouth had not seen one for twenty years.

Mr. A. Craig, writing of the bird in Glen Urquhart, in 1882, says that the Goldfinch was not rare there fifteen or twenty years ago, but that it is now extinct. He assigns bird-catching and the improved system of farming, whereby the thistles have been eradicated, as the causes of this species' disappearance. The extinction of the bird, he says, was gradual.

Gray, writing in 1871, says the bird was a well-known species about Dingwall, but that the rapid advancement of agriculture in Strathpeffer and Strath Conon had rooted out many spots which were formerly attractive to these birds, and that during a residence of some weeks in that neighbourhood in 1868-69 he himself never once noticed it.

The Goldfinch is recorded from Fairburn, Ross-shire, by Captain Stirling, but several of our correspondents pass the bird over in silence, and to all our inquiries, for answer we get the same statement that it was once common, but is now extinct. The cause of the extinction of the species from our northern area may be from the ease with which it is caught by the bird-catching fraternity, but certainly not from the extinction of the thistle. These North of Scotland Goldfinches never, so far as we know, had the gaps in their ranks filled up by migratory birds, as, were this the case, we should see some of these visitors now. They appear to have been stationary, or at least only locally migratory, possibly even as far as the South of England; but if they did get so far, they ran still greater risks from the bird-catchers there, so that fewer and fewer would be left to return each year, until at last they entirely, or almost entirely, disappeared. The Goldfinch is a favourite cage-bird in the North as well as in the South, so that the unfortunate little bird was harassed on all hands.

Besides the foregoing, severe winters seem to have been very destructive to these birds. Don gives the winter of 1813, and Macgillivray that of 1823, as being very fatal to Goldfinches, and probably their numbers never increased much, if at all, since then (Gray, *Birds of West of Scotland*, p. 145).

South of the Ness the Goldfinch is resident, but extremely local, and decimated by land improvement and by bird-catchers.

The *O.S.A.* records the Goldfinch in the parish of Kilmalie ['Argyll'], vol. viii. p. 423; Mortlach, vol. xvii. p. 418.

Mr. Robert Peddison, an old bird-catcher near Forres, whom we interviewed specially in connection with this species, remembered the Goldfinch 'swarming.' At the present time—as he related to us—he has to buy birds from England and from Russia!

Even as early as 1884 it is noted as 'not very common'; and by 1885 there is a general consensus of opinion which makes out the Goldfinch as '*a rare bird now*.' About thirty-five years previous to 1890, Captain Dunbar-Brander used to take one or two nests every year near Elgin; he has not seen a single bird for the past ten years. In 1885 Brown of Forres wrote, 'Nowhere to be seen.' But in 1887, however, Mr. O. A. J. Lee saw a Goldfinch in the neighbourhood of Forres on May 18th. In 1863 to 1865 Harvie-Brown used frequently to see Goldfinches in an apple- and cherry-tree orchard far up the Spey in Badenoch (1200 feet above the sea), which orchard was in an enclosure close to the bedroom-windows of the farm in which he stayed when fishing the upper reaches of the Spey for trout—one of the very few places he has seen Goldfinches in Scotland. Edward speaks of it as rare, and 'in great measure captured by the bird-catchers,' but at one time, according to his notes, it appears to have bred about the Lower Deveron. Dr. J. O. Wilson, in his list of the birds of the Huntly district, includes it under square brackets, and unnumbered, and says:—'The Goldfinch has not been seen wild in this district for many years, as far as I know.' In 1892, however, Mr. Robert Thomson, of Ferness school-house, informs us he saw a pair in a garden there.

In 1893 we were informed by Mr. C. W. Douglas (Assistant and Lecturer on Physiology, Edinburgh) that he saw several Goldfinches and Siskins in the birch wood close to Ardwell (where we have mentioned that the Waxwing was procured this same season). We made a point of searching and watching there for several days after, but we saw no signs of either, though Bullfinches were seen each day, and these were not mentioned by him. He was, however, very positive about both species. We quite believe it possible that, as the Goldfinches have been severely driven out from their more accustomed haunts, they may take to more hilly ground, where, however, they are also decidedly very rare indeed, because the most careful inquiries utterly failed to obtain the slightest corroboration, and also elicited most positive negatives of its occurrence in the district from all who certainly knew the bird—and the knowledge of it as a cage-bird is very general.[1]

Writing us under date of October 30th, 1893, Mr. Chisholm, head-gamekeeper at Foyers, says that he has only seen the Goldfinch there on two occasions. One was about the middle of March in that year.

As regards the disappearance of Goldfinches from North Britain, the student of Mr. Gätke's remarks upon migration of certain species from north to south, as opposed to that of species from east to west, may find subject for consideration. The present range of the Goldfinch is limited, or nearly so, to European areas west of the Ural, and does not extend far *north* into Scandinavia (Collett; and Dresser). The principal migration of the Goldfinch passes on a north to south course, not on an east to west course. The same occurs with many species whose east to west distribution is *not* extensive, such as, for instance, in the case of the Blue-throated Warbler, the bulk of which passes south. But many species that have this north to south tendency of their migration lines are also found to have been, or still to be, breeding species in North Britain, such as the Crossbill, which is distributed also to the far north on the Continent. Their line is also north to south, as a rule.

At one time the Goldfinch would appear to have been similarly distributed. And its migrations were no doubt upon the north to south lines both in Great Britain and on the Continent. We seldom if ever hear of Goldfinches at the lighthouses of our east coast of Britain. If, then, removal of their landmarks and food-supplies, such as thistles, and the persecution by bird-catchers, are continued for a long series of years, where could they look to for accessions or replacements on migration? To put an instance more strongly still: Suppose our Crested Tits of Strathspey were *killed out*, would we expect that, in course of time, their places could be filled up again by immigrants from the east? The Crested Tit is a sedentary species; but suppose it was not, and a north to south migrant both in Britain and the Continent, would it be likely, even then, to recuperate from the east? We think not. Only by increase of numbers and congestion at South British localities would there be a likelihood of a northerly increase in breeding range and resuscitation, so to speak, of its numbers in North Britain. In the same way, how can we expect to have our White-tailed Eagles increased in number, when their present line of migration from the Continent passes for the most part down our *east coast* from the Ord of Caithness?

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[1] Mr George Sim looks upon it also as extinct in 'Dee.'

Chrysomitris spinus (*L.*). Siskin.

Fairly abundant, and resident in the northern parts of our area, and breeds in many localities from Dunrobin[1] southwards. Their nest is generally placed in thick spruce or the terminal fronds of a pine, often 60 feet from the ground, and is not only difficult to find, but the eggs are often still more difficult to get out of the nest, from the position of the latter. The young birds are much in request as cage-birds wherever they are known to nest, but as yet no impression has been made on their numbers as is the case with the species last mentioned. In 1869 Booth took a nest and eggs from Tarlogie Wood, near Tain, but later Mr. Jennings remarks that he has only met with one pair in that locality.

Mr. A. Craig says that their numbers in Glen Urquhart vary from year to year, but that there are always some to be found. Near Inverness the late Dr. Aitken found numbers of this bird, and procured a nest at Dochfour. Two of our correspondents from Invergarry inform us that they breed there, and one of them had taken the nest. Siskins are not rare in the neighbourhood of Foyers.

[1] *Fauna of Sutherland and Caithness*, p. 125.

In winter they are often seen about the alders which fringe the river near Inverness.

In the south of our area the Siskin is resident, or partially migratory from its breeding haunts amongst spruces and pines to the winter resorts of alder by the sides of the rivers in their lower or middle reaches.

It was considered doubtful whether they actually nested or not, until St. John put the matter beyond doubt in 1850, and instanced several localities in the Laigh of Moray.[1] Another early record or series of records are those communicated to Hancock of Newcastle by Mr. A. Macdonald,[2] East Ross-shire, in 1853; and we are assured by Lewis Dunbar that they were far from rare along Strathspey in 1847 to 1853, when he was resident at Grantown. But, even earlier still, we find in the *Fauna of Moray* that it had been repeatedly met with in small flocks in autumn and winter both in Elgin and Nairn, and that one well-ascertained instance occurred of its nesting and taking off its young at Elgin Hill about two and a half miles from Lochnabo, which locality is amongst those mentioned by St. John.

Since these earlier dates there can be no doubt as to its abundance, whether due to a natural increase or owing to previous dearth of observers, and at the present time it is abundant, if unobtrusive. By some it is spoken of as 'rather rare,' but such remarks are usually only of local significance; but it is certainly not easy to arrive at minute details of its distribution or of its abundance or scarcity. That they are partially migratory is not to be doubted, and the probability is that a considerable proportion pass out of the Spey valley and migrate past Dalwhinnie, at least in some seasons. A few are seen occasionally, even in late summer, at this high-level station, once on June 29th, 1885, by Backhouse, but they may not occur there every year. It is even just possible a pair or so may breed in this oasis of wood in the middle of the moor. In Abernethy woods the sons of Rev. W. Forsyth, D.D., have often found nests; and near Aberlour many are caught by a local bird-catcher in winter, and they almost certainly breed in that neighbourhood, where we have seen them by the river-side, when salmon-fishing in May. The Siskin is, however, less often seen than the Crossbill, which frequents the same ground. It is seen in small flocks also in Glen Avon and Glen Fiddich in autumn, and its general occurrence may be noted by the frequency with which its presence as a caged bird may be observed in local aviaries.

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[1] The first recorded Siskin's nest was taken by Lewis Dunbar near Inverness on April 10th, 1850 (Hewitson, *Eggs of Brit. Birds*, 3rd ed., vol. i. p. 199.)

[2] Alexander Macdonald lived at Bog of Balnagown, and sent eggs of Crossbills, etc., to Hancock; and Alexander Macdonald afterwards sent clutches (1870) to Harvie-Brown. Again he wrote to Harvie-Brown in 1870:—'I know it was me who sent him' (referring to Mr. Hancock) 'the last lot from Balnagown in 1862.' Alexander Macdonald left Balnagown and went to America, and a brother—William—afterwards obtained eggs on at least one occasion.

In 1893 both the Siskin and the Goldfinch were about equally well-known as cage-birds, but though stated to have been seen in a wild state in the birch woods about Ardwell on the Lower Cabrach valley of Deveron—as mentioned under Goldfinch, *q.v.*—all endeavour to obtain more evidence of their presence utterly failed; and if they usually occur, we think they could hardly have escaped our own observation during the four years we have fished there in June, July, and part of August. As our informant spoke of them as occurring in flocks, we cannot help thinking there must have been some mistake. However, in an unusually early season like 1893 it is just possible a few might wander from their more usually congenial haunts, and, like the Missel-Thrushes and some other species, trend upwards towards the hill-birches, instead of downwards towards the river-alders. Wild fruits were quite a month or six weeks earlier, and land insects no doubt the same.

Hinxman writes us that Siskins were very abundant at Aberlour in the autumn of 1893. One of the porters at the station caught over twenty with a decoy trap-cage fixed to one of the telegraph-posts on the line. We found them there also not unfrequently among the river-side alders in May 1884.

[*Obs.*—*Indigo or Painted Finch.*—This North American species was obtained at Newton of Struthers, near Forres, by Mr. Mackessack in 1866. No doubt it was an escape, although our endeavours to ascertain from whence have not been successful. Our friend, Mr. Campbell Macpherson of Drumduan, who has a fine aviary, informs us that, among other species, he has one male Indigo Finch, but he adds (*in lit.* to us), 'There is not the smallest chance of an escape from my aviary, unless something extraordinary were to happen.' The specimen mentioned above—a young male—is now in our collection at Dunipace.]

Ligurinus chloris (*L.*). Greenfinch.

Local Name.—Green Lintie.

Common and resident north of the Great Glen, but in winter partially migratory to the cultivated areas. The Greenfinch is an increasing species in places. Mr. Malcolm says it is getting commoner at Invergarry (1892), and nesting there. About Inverness it nests in the gardens near the town, but leaves when the young are hatched.

South of the Ness the Greenfinch is abundant in the lower reaches and most cultivated areas, frequenting gardens, shrubberies, and high-hedged fields and lanes, especially amongst mixed areas of hardwoods, and is very generally distributed. It is also abundant in the Laigh of Moray and all along the south coast and inland plantations of the Moray Firth; also along Speyside and Strathspey, Glen Fiddich, and Strathavon, through the lower reaches, but is somewhat local in the latter glens (Hinxman). Records date back to the earliest we have access to, viz., 1844 (*Fauna of Moray*).

In 1893 we met with clouds of Greenfinches among the well-wooded reaches of Lower Speyside and around Fochabers; and also on Lower Deveron they were breeding very abundantly in May. They were not observed in Upper Glen Avon by Hinxman, but were seen at Colgart, about 1400 feet.

Coccothraustes vulgaris, *Pall.* Hawfinch.

St. John writes: 'I have seen the Hawfinch or Grosbeak (*Coccothraustes vulgaris*) on the opposite coast of Sutherlandshire, but have not seen it in Morayshire. A bird was described to me as having been seen near Forres, which I have little doubt was the Hawfinch' (*Natural History and Sport in Moray*, p. 119).

Gray quotes A. G. More (*Distribution of British Birds in the Nesting Season*) that it reaches Banffshire, but there is no evidence otherwise to show this except Edward's imperfect record, 'a rare bird with us'—no doubt the only authority for A. G. More's statement.

Passer domesticus (*L.*). Common Sparrow.

Local Names.—Spurd ; (at Keith) Gregor.

Abundant and widely distributed, but local north of the Ness. The

Sparrow has penetrated up many of the straths, even as far as Guisachan, which is on one of the branches of the Beauly. At the same time, the Sparrow is not found everywhere, even in places one would think most suitable for it. Before the year 1880 we had never seen a Sparrow at Gordonbush in Strath Brora, although they were abundant at the village of Brora, only six miles lower down. At Balnacoil one pair bred in 1879. Hepburn remarks that he found this species about towns and villages, but not so common about the homesteads as in the better cultivated districts (1847). At Invergarry there were *none* until 'a good many years ago,' when the late Mr. Ellice brought a few pairs from London; now they are abundant (J. Malcolm, Esq., *in lit.* 1893).

Captain Ellice informs us that a white Sparrow was killed at Invergarry some years ago.

This species is recorded as 'numerous' in all lists from the Lower Deveron, though it is nowhere very abundant on the upper reaches of that river, nor of Fiddich, nor in Strathavon, except in the towns of Dufftown and Tomintoul and other villages; but a few are to be found at most of the hill 'fairm-toons' (*Anglicè*, 'farm-steadings').

The *O.S.A.* has the statement that the Common Sparrow had been abundant about Ballindalloch up to the date of the great floods of 1829, but that 'by 1845 not a single individual of the species had yet made its appearance, and Chaffinches were scarce for a year afterwards.' We give the quotation for what it is worth. As early as 1835 it was found as far up as Tomintoul. It is common at Tomatin; very abundant at Carr Bridge, Boat of Garten, Abernethy, Aviemore, Kincraig, Kingussie, Glen Tromie, and wherever shrubs and ivy have been planted or are numerous.

Passer montanus (*L.*). Tree Sparrow.

The Tree Sparrow is found at several places along the east coast of Sutherland, as Helmsdale and Dornoch, where it was found breeding by Sheriff Mackenzie, and quite lately (1894) it has been obtained by Mr. Houstoun at Kintradwell. We have no record of it from Ross-shire, but it is found at Moniack Castle, near Beauly, as we are informed by Mr. F. Cameron.

St. John found it 'not uncommon' about Elgin, breeding in the holes of old walls and similar places, and there were several pairs in his own garden there.

Edward says it is found in several localities in the county of Banff. It is not in the Banff Museum nor in Smith's lists, nor have we, during three years' experience of the district, ever met with it in the summer, nor indeed at any time, and Dr. J. O. Wilson is unacquainted with it as a native of Middle Deveron.

According to the *Fauna of Moray* it was obtained near Forres in 1878. It certainly has bred, and perhaps still breeds, at Pitgaveny House, close to the Loch of Spynie (Captain Dunbar-Brander, *ex ore*). Brown of Forres assures us it breeds in holes in certain old large ash-trees close to Forres, but, he adds, they do not appear to increase, and are considered quite scarce, both by him and by Mr. Mackessack of Newton Struthers. As early as January 1838 Tree Sparrows were reported as having been seen near Waulkmill, Forres, by Norman; also at Cassieford, Forres, early in 1879, by the same gentleman. Foljambe gave the Main Wood, near Elgin, as a locality in February 1838. Of later years Brown of Forres has found the nests in the same willow-trees spoken of above; and in 1883 Captain Dunbar-Brander reported them again at Pitgaveny in June. Backhouse met with Tree Sparrows near Killiecrankie ('Tay') in 1885, and Millais observed them at Fort George.

In 1893 we had the satisfaction of identifying the Tree Sparrow in the holes of the old ash-trees referred to above, near Forres, on two occasions—in April, and again in July.

Fringilla cœlebs, *L.* Chaffinch.

Local Names.—Chaffie, Boldie, Chic; (in Banff) Tree Lintie (*Fauna of Moray*).

There is no more abundant species in the north of our area than the Chaffinch; no place that we have ever visited is without its full share; winter and summer it is equally plentiful. Albinos do not seem particularly common amongst them, seeing they are so numerous. One was shot at Craigellachie in January 1857, and sent to Inverness for preservation.

The Chaffinch is resident, very abundant, and very generally distributed in the south of our area—indeed, almost our commonest bird. It ranges as far up as Tomintoul in Glen Avon, and up all the glens as far as arboreal vegetation extends, and far up the main valley of the Spey into Upper Badenoch.

Fringilla montifringilla, *L.* Brambling.

Not rare north of the Ness, but local, probably most numerous where there is abundance of beech-trees, as about Invergordon and district. We have no notice of it from any of the higher straths and glens, but it has been observed by Muirhead at Glen Urquhart. It is rare in Sutherland, though we have observed the species at Badenloch on migration.

In the south of our area the Brambling is not often seen in any numbers, and is reckoned rare by bird-catchers. Edward says, 'A few every season,' *i.e.* around Banff, and there is one in the Museum, but it is labelled *Twite*, thus confusing *Mountain Linnet* and *Mountain Finch*! Its presence, however, is vouched for in Rev. A. Smith's lists. St. John says Bramblings are uncommon and irregular visitants to Morayshire, several years passing without any being seen.

Dr. J. O. Wilson records it as 'occurring in winter,' and calls it 'Mountain Chaffinch,' but we do not think this is a recognised local name (?). 'It occurred,' says Hinxman, 'in Strathaven in the autumn of 1891'; he also notes that it is 'met with sparingly among flocks of Chaffinches, and that only in severe winters.' At Damhead, Milton, on the Brodie estate, the Rev. J. Brodie Innes saw a flight of six or eight birds in December 1879, and another flight at the same place in March of the next year. Mr. Robert Peddison, local bird-catcher at Forres, caught one—a male—in December 1891, which is now (1892) in a small aviary belonging to Mr. Macdonald of the Station Hotel, Forres. Mr. Peddison told us:—'Never, in his long experience, had the Brambling come to his lures, nor had he ever seen any before.' But from other sources we learn that they must have been far from scarce in that district in the severe winter of 1891-92, although he only obtained the one bird.

In Mr. Campbell Macpherson's aviary at Drumduan, Forres, in the summer of 1886, 'a pair of Bramblings made a rough nest in a small box fastened to a bare tree, laid eggs, and reared one young one—a hen—which I removed a few days ago into the company of another cock in another compartment' (Mr. C. Macpherson, *in lit.* 1887).

A male, marked as 'rare,' was presented to the Elgin Museum by the late Rev. Dr. George Gordon, which was killed at Grant Lodge.[1]

Bramblings were quite numerous in the neighbourhood of Inverness during the severe winter of 1894-95, and we saw some large flocks. On two or three occasions a single bird came to the window to feed with the other small birds.

Linota cannabina (*L.*). Linnet.

Local Names.—Lintie, Whin Lintie, Rose Lintie (Whin Lintie is also applied to the Whinchat).

North of the Ness the Linnet is common and resident through, and up to the borders of, the cultivated area, but does not extend much beyond, unless where there are patches of whins. It is common, and breeds at Invergarry, but is not mentioned by Mr. Craig as occurring at Glen Urquhart.

The *O.S.A.* notes them at Grange (Deveron)—a very likely spot about the base of the Knock Hill—and in Kilmalie parish, on the

If birds of northern Scandinavia migrate *direct* upon our shores, it does seem strange that we do not anywhere within our area—or indeed in Scotland, north, at least, of the Firth of Forth—receive annual flocks of this extremely common Scandinavian species. It is well known how irregularly they visit us in any large numbers. In 1860-61 immense flights stayed for weeks in the Lothians, and in 1892-93 numbers were seen with Chaffinches and Lapland Buntings along our east coast; and while most abundant in the south-east counties of England, was observed also as far north as Shetland by Harvie-Brown and Mr. Adrian Forrester in October 1892.

In the same way, and in further illustration:—though denominated the *Lapland Bunting*, the area occupied by the species in the breeding season, we believe, is much vaster east of the White Sea than in the country which gives it its English name. We cannot think our occasional visits of the Lapland Bunting are of Scandinavian origin, but reach us from far farther eastern centres of population, *via* the Bothnian Gulf and Heligoland. The warm coast-line of Western Norway leads the Scandinavian population *southwards*. They have no occasion to *seek* still warmer latitudes thence, until, having arrived at the colder continental area opposite Heligoland, temperature again diverts their course westward, and they then again travel from colder latitudes to the more genial ones of our isles, *i.e.* when extremely severe winters reign over the greater part of the continent of Europe. The above notes are thrown out as embodying the conclusions as so far arrived at by us, perfectly subject, however, to correction and further proofs.

south-west of the area of Moray. We have found the species common all over the Laigh of Moray, especially near Loch Spynie, in flocks in May, and near the village of Findhorn, amongst flowering gorse or whin, and on Newton Struthers farm, near Forres. It is abundant in Glenfiddich and Strathavon, as far up the Glen as Tomintoul, and on the Deveron right up into the Upper Cabrach in the plantation near the manse and shooting-lodge. At this place we have met with all three allied species, Linnet, Redpoll, and Twite, on the same day in August 1891, and at other times and in other years.

In 1893 we found Linnets extremely abundant amongst high gorse and broom on the banks of the Deveron at Drachlaw. Nowhere else have we seen them so abundant.

Linota rufescens (*Vieill.*). Lesser Redpoll.

This Redpoll affects the birch woods which grow so generally along the lower slopes of the inland straths, breeding in such situations, as also among the alder-trees along the river-margins. It breeds at Invergarry, and we saw several in May 1892 about the birch-trees at the head of Loch Garry, and it extends northwards through Ross-shire into the Sutherland glens.

South of the Great Glen, the Lesser Redpoll is resident and local, just as the growth of young wood suits its requirements.

Edward says:—'This is found most plentifully in the higher districts of the county (*i.e.* Banff), but in severe winters large flocks of them descend to the low grounds.' It is almost needless to point out that these remarks are misapplied, and that they refer, or should have been referred, to the Twite or Mountain Linnet; and we find in the Museum a Twite labelled 'Brambling,' and a Brambling labelled 'Twite.' However, the Redpoll does occur certainly in the upper reaches where suitable young plantations occur, and that not at all uncommonly, yet we would not designate it as a species typically frequenting the *higher* districts. As already incidentally mentioned, we have met with it in the Upper Cabrach valley.

It is not uncommon around Abernethy, and the unmistakable eggs are in the collection formed by the sons of the Rev. William Forsyth, D.D. In August 1881 Harvie-Brown found it very common on the freshly-planted ground near the west end of

Loch Errochd (really in 'Tay'), where Twites are also abundant. Redpolls are found throughout the low grounds of the Moray Firth, Laigh of Moray, etc., as also about Dalwhinnie, where they were seen by Backhouse in July 1885, and again by William Evans in June 1892. It is considered rare around Grantown by Mr. Stewart, but may prove, upon further investigation, to be not so rare as local. The younger plantations in the hollow of the Cromdale Hills facing to the Spey below Grantown are almost sure to hold them as well as other similarly planted areas.

Linota linaria (*L.*). Mealy Redpoll.

Edward has it 'a rare species'—a record, like many others of Edward's, more 's the pity, of very little scientific value or use.

St. John remarks that he has seen the Mealy Redpoll only in small companies of from two to six, but it is much rarer than the last species.

Linota flavirostris (*L.*). Twite.

Local Names.—Hill-Lintie, Heather-Lintie, Yellow-neb Lintie (Dr. J. O. Wilson).

Probably the Twite is in many places not recognised as distinct from the Linnet, or it may be that it is much more local. North of the Ness it inhabits the higher and more moorland parts that border on cultivation, though rarely, if ever, found on the open heather, at least in this part of the mainland. Mr. A. Craig found it near Glen Urquhart, but by some of our correspondents it does not seem to have been distinguished from the commoner species. In Sutherland we have taken the nest at Badenloch among the pine-trees round the shooting-lodge, but we have not noticed it out in the open ground.

In the south of our area the Twite is resident and abundant, and frequents the Carn districts in numbers above the birch woods, flocking early in August, or even at the end of July. It is universally distributed among the higher grounds of the whole southern area up to about 1200 or 1300 feet. Hinxman considers them as 'common, but sparingly distributed as a nesting species, but appearing in large flocks in autumn, probably with Redpolls;

but,' he adds, 'I have not recognised the latter.' Brown says the Twite is not abundant about Forres; and it certainly appears to be more local on the mosses and moors of the main valleys, even as late as August, as is noted by Mr. W. Evans in 1889. It certainly seems to be the hardiest of the genus, and latest to descend from the higher range of its breeding haunts. The species is said to have been observed upon migration—local or otherwise—at Dalwhinnie by Messrs. Evans and Backhouse.

We have ourselves met with the Twite everywhere, and its distribution may be described as exceedingly general throughout all the higher districts of Moray—Spey, Deveron, Findhorn, Nairn, and tributaries—and is seen in flocks in June, July, and onwards according to the earliness or lateness of the seasons, from the higher 'fairm-toons' of Cabrach down the valleys and through all the upper reaches, but rarer near the sea, although *not absent* on the higher-lying ranges and on the coast itself. It feeds greedily on seeds of grasses, flocking upon the thatched roofs of the farm-houses; is abundant upon the gravel scaurs along the upper waters of the rivers, which are skirted by low bushes of birch, hazel, or juniper, that have been browsed and dwarfed by sheep and cattle, and is often seen close to the burn-sides among the meadows.

Pyrrhula europæa, *Vieill.* Bullfinch.

A common, though not abundant, species everywhere in the north of our area, and seen by us wherever we have gone, as far as the birch-trees extend up the straths. A pure white one was killed near Corriemony in July 1866. Bullfinches are hardy birds, and do not leave these higher localities, however severe the weather may be, as we have seen them in flocks feeding on the heather seeds away from trees in the hardest weather.

Southwards, too, the Bullfinch is a resident, but possibly at one time was only an autumn and winter visitant, and of late years has become certainly a spreading species up the west coast and elsewhere in Scotland. There is an absence of record from anywhere within our area at the date of the *O.S.A.*, except Mortlach parish,[1] on the borders and watersheds of Deveron and Spey; and in the adjoining area of Dee it is spoken of thus:—'Of late years, in the month of November, Bullfinches make their appearance and continue through the winter' (*O.S.A.*, parish of Strichen, Aberdeen, vol. vii. p. 419). Edward includes it, and so does Rev. A. Smith, and there are specimens in the Banff Museum, amongst these latter a peculiar variety, described by Gray.

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[1] The returns from the parish of Mortlach can be relied upon.

Of later years a marked increase of this species has taken place, though there is no doubt that when larch, birch, alder, and other buds begin to appear, Bullfinches are more commonly observed, as they come out of the larger woods at that season. In 1844 it was spoken of as 'much more common than the Goldfinch,' so that at that time they were actually considered in comparison. Needless to say, no comparison is necessary now. Norman spoke of the Bullfinch as 'very common and breeding' about Forres. Mr. Sim speaks of it as common about Turriff thirty years ago (1860).

At the present day it occurs quite too generally and quite too abundantly to make it necessary to specify localities. It is found over the whole wooded area, and occasionally as far up the Truim as Dalwhinnie (J. Backhouse), and far above Tomatin on the Findhorn.

Loxia curvirostra, *L.* Crossbill.

The Crossbill is one of those birds that is increasing enormously, and this is, of course, easily accounted for by the immense tracts recently planted with the different species of pines. There is not a place known to us in the north of our area where, if the fir-trees are of a sufficient size, these birds have not been observed. We believe that many collectors of eggs in former years were indebted to Macdonald of Balnagown, Ross-shire, for providing them with eggs and nests of this species: the bird is as common there as ever it was.

They are common in the south-east of the county of Sutherland, and we have eggs from that district in our collection. About fifty years ago—1840—they appeared at Rosehall, but only for a short time; they then entirely disappeared (*fide* Macleay, *V. Fauna of Sutherland and Caithness*, p. 134).

From a note received from Dr. Joass, Golspie, it appears that the Crossbills left their old nesting-ground near the Little Ferry, and, after an absence of some six or eight years, returned in 1894.

Although common in Glen Urquhart as long ago as 1865, Muirhead could not ascertain that they bred there at that date, though he looked for the nest: they appeared to leave about April and return in October. Writing from the same place in 1882, Mr. A. Craig remarks that 'they have been known to occur at intervals for many years, but lately have taken up their abode permanently, although disappearing now and again for a short time, when it is believed they retire to the higher and more distant pine woods in search of food. Beyond all doubt they are now breeding freely there, as in March and April numerous flocks, composed chiefly of young birds, fly about—uniting in autumn and winter—as many as sixty or seventy' (*Proceedings, Royal Physical Society*, 15th March 1882). Mr. Craig gives a very interesting account in the same place of their manner of feeding, etc.

Sheriff Mackenzie writes us that a pair of Crossbills in his possession were taken with the nest bodily out of the tree, and brought nearer and nearer the capturer's house each day, the old cock (?) alone following and feeding them, even when the nest was at last put into a cage; the hen (?) was seen about, but never feeding the young.

The late Dr. Aitken wrote us, about 1880, that the Crossbill was getting rather common near Inverness at that time.

With the immense amount of planted area along the east of Ross-shire, it is not surprising to find this bird so numerous, and it has spread, no doubt, from the coast-line, as we know it has, by their following up the glens and straths wherever the trees were suitable for nesting or food. It occurs at Guisachan up Strath Glass, and also at Fairburn, etc. etc.

The first Crossbill's eggs taken in Scotland were procured in our present area, so far as records guide us, in 1854, and were sent to Hancock. They were procured by the before-mentioned Macdonald, who lived near Balnagown, and who supplied us with eggs for our own collection in 1868. In 1850 Hancock and St. John found a nest near the Findhorn, from which the young had just flown, and which they saw sitting on a tree close by the nest.

As early as the date of Mr. Hoy's notes we have it recorded :—

'A male and female shot at Gordon Castle by the Duke, December 29th, 1809, agreeing with Pennant's description,' etc. etc.;[1] also:—'Saw a pair of them, July 4th, 1821, feeding very familiarly near some masons building a lodge, near the White Gate at Gordon Castle. The masons think they have a nest near the place, and that they hear their young.'

Edward says 'it is on the increase,' and that 'they have nested with us for some time.' There are specimens in the Banff Museum, and Rev. A. Smith says it has been occasionally met with (*N.S.A.* 1845, parish of Banff). Dr. J. O. Wilson says of it in the neighbourhood of Huntly: 'Occurs in small flocks in our fir woods pretty frequently,' and believes 'it breeds in the locality.' Mr. Goodbrand, gamekeeper, Cullen, includes it in a list sent us from the Cullen estates. In 1864 it is spoken of as 'occasionally breeding.' Now it swarms over many miles of forests in Moray, and is rapidly extending its breeding area both westwards and eastwards, overflowing into 'Dee' by the Ythan valley, and into West Ross about Loch Maree. The peculiar pulsing or irregularity of the migratory movements in each year, clearly shows to us that this species is one of those which are asserting their fitness, and increasing almost as rapidly as Jackdaws, Rooks, and Starlings, just as the woods and forests increase, and afford them shelter and natural feeding, the trees often, we believe, receiving benefit also by the judicious and natural bud-pruning which they get from the birds. We have seen a Crossbill's nest of late years with seven eggs in it; formerly, five used to be considered a normal number.

Norman considered it a breeding bird when he wrote at Forres, and he saw 'large numbers in Cluny Hill woods, in September 1868, where they came when the larch cones ripened.' They bred also in the Altyre woods, nesting so late as 21st April in the extremities of fir branches (*Zoologist*, 1868, p. 1255).

As related in 1841, 'a Crossbill was shot' some years ago in the oak wood near Elgin, by Mr. G. Taylor; and the same year there were a few seen both at Calcots, Elginshire, and at Cawdor, Nairnshire, and it was reported as more plentiful at Altyre, while a flock was seen at Spynie, July 4th, 1859 (*Fauna of Moray*). It was known to breed at Mainwood, near Elgin (J. Hancock); also at Grantown, in Strathspey, and at Grant Castle (*Fauna of Moray*). In 1885 Mr. J. Backhouse observed some at work in Dalwhinnie Wood for several days, and one was shot for him by Mr. M'Donald—the landlord of the hotel. This was upon the 20th June, and it is worth recording that this Crossbill and a Siskin, shot the same day, were the first of either species ever seen there, and Mr. M'Donald has a good eye for new birds.

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[1] Hoy, after quoting Berkenhout, usually added his own descriptions, and refers, as above, to Pennant. We do not reproduce these notes, as they are not usually of direct utility in a faunal work.

Lewis Dunbar took Crossbill's eggs in Strathspey as long ago as 1848 (Lewis Dunbar, *in lit.* to J. Wolley, and also to us).[1] Mr. Gatherer, present Curator of the Elgin Museum, obtained eggs and nest also as low down the Spey as Fochabers, which are now in the Museum, indicating pretty clearly one line of extension eastwards to Cullen and Deveron valley. We have also a note that they bred near Nairn, in the spring of 1891. Mr. Rose, of Holm Rose, near Nairn, had, in June 1891, in a cage, the nest, young, and the two old birds, taken by himself the spring of the same year; he found the nest when it had eggs (vide *Inverness Courier*, May 22nd, 1891, p. 3). Mr. Rose, replying to our inquiries, writes:—'Crossbills are rather periodical visitors, but are far less numerous during the last four or five years. I have only seen one pair anywhere about here during the last year.' Mr. Rose has also bred Crossbills in confinement. A pair made a nest in a cage, and the hen laid eggs which she hatched out, and reared the young until they were nearly full-grown, when they unfortunately died. One of the nests that Mr. Rose took, and from which he reared the young, was placed in an alder-tree.

The Crossbill is seen about Tomatin, on the Findhorn, in April. There are pines all round old enough for nesting purposes—the youngest about forty years old. Much older pines and larch (with the twigs of which latter these birds delight to build their nests) exist, but are only the remnants of an old forest.[2] Crossbills are said to have been unusually abundant in the Spey forests in 1891. As we have remarked, their numbers are subject to fluctuation, and they appear to come in successive 'waves,' but the extension of range is decidedly going on.

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[1] We are indebted to Professor A. Newton for kindly allowing us to see numerous letters of correspondents of the late Mr. John Wolley.

[2] Only five or six very old larch remain standing, being the remains from a general cutting down by the present proprietor's father (M'Bean, Esq. of Tomatin).

At present we can epitomise its distributional area as follows:—South of the Moray Firth the Crossbill is found all over Strathspey and down Speyside, as far up Badenoch as Kingussie, whilst the tributary glens of Feshie, Dulnan, and the minor stream-valleys of the wooded tracts, are full of them. They overflow into the valley of the Findhorn, down through Ardclach and Darnaway, Altyre, Brodie, Culmoney, and into the valley of the Nairn, at Cawdor and Holm Rose, and so along to Forres and all through the Laigh of Moray, and the woods which crest the Braes o' Moray about the source of the river Lossie, stretching eastward across the mouths of Spey, *via* Lochaber, into Deveron at Cullen, Rothiemay, and the Bin woods around Huntly. The overflow has also extended out of Moray into Dee by the Ythan [1] and Bogie valleys; and out of Moray, north of Inverness, into the West Ross area *via* Loch Maree.

The whole history of the expansion of the Crossbill's breeding area in Scotland, up to the present time, certainly appears to us to teach a lesson; and even since the above account was put down in black and white, we continue to receive further rapid developments, and records of still more remarkable occurrences. Of late years only has the Crossbill inhabited West Ross as a part of its breeding area. Only of late years has the Crossbill appeared on migration upon our west coast, as for instance in Mull; and we have ventured to predict a rapid increase of range and breeding quarters from the Ross-shire locality towards the south, after the new migration route has become well known and more abundantly used. As we write, further information reaches us:—'Crossbills in Foula,' where 'the islanders never saw these birds before' (Frank Trail, in *Annals Scottish Natural History*, October 1894); and coincident with this record is another by the editors, of 'Crossbills at Monach Island,' the westermost of the Outer Hebrides, and also a flock again at an Inner Hebridean locality, viz., Skerryvore (*loc. cit.*). These occurrences were:—the former on the 16th August and 3rd September, with winds north-west, north, and north-east, strong; and the latter at the earlier autumn or late summer dates of 7th August (Monach) and July 2nd (Skerryvore). Where, we ask, was the breeding-place of the Foula individuals? If a vast increase *has* taken place in Scotland of the species, and our eastern pine woods have become congested, has not a similar and vaster increase also taken place on continental areas, and caused a wider 'wave' or impulse which at last may reach Foula and the Outer Hebrides? What impulse, what accident (if you will!) caused a wing of a migration to brush against Foula during the autumn migration? We would ask our readers in this connection to consult our remarks under Woodcock, and then they may perhaps form some idea of the law we desire, in this, as in other places, to illustrate. Does the whole study not point to a possible solution of the great problem and the natural law of increase, its outcome and consequent expansion, ever increasing in its strength and widening the routes, to supply the increasing necessities of altering circumstances? We cannot help thinking that if an enterprising naturalist or proprietor of such an island as Foula started a proper migration observatory, very interesting and curious results might be developed. Even negative evidence would be valuable in such an inquiry.

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[1] A nest with four eggs was taken by Mr. George Muirhead and Mr. A. H. Evans in April 1893, of which two eggs are retained in the Museum which is being formed at Haddo House, and two are in the latter gentleman's collection.

Since writing the above we have received an additional interesting note from Mr. George Sim of Aberdeen, whose attention to the fauna of Dee has been for many years unremitting, assiduous, and most painstaking. In reply to our application to him to inform us of actual distribution of this species to the south of 'Dee' he says:—'This species has been on migration in great numbers for some time back, and in their movements have taken refuge in the rigging of our trawling vessels, some of them in such an exhausted condition that they were easily caught.' Our trawlers, be it remembered, are (or *ought to be*) outside the three-mile limit! Mr. Sim continues:—'In so far as I can learn, these birds are only observed during their autumn movements. . . . First, on September 18th some were shown to me by sailors, and the men said they had come on board in "good numbers" two or three days before they left the fishing-grounds; and again on October 1st others were caught and brought to me; these also must have been in the hands of their captors two or three days before they came to port.'

Amongst the few ornithologists, we believe, who have secured eggs, or actually found nests of the Crossbill in Strathspey, we may mention Mr. R. H. Read, and as his notes are of interest we shortly epitomise them. He found a nest near Inverdruie after three days' endeavour. He saw 'what looked like a small pigeon's nest about twenty feet from the ground in the top of a small Scotch fir.' (This proved to be an old nest of the Crossbill.) 'Within fifty yards,' he continues, 'I saw another in a precisely similar position.' Then the old bird flew off. 'It was of a greenish tint, and I could see the "hatching spots" on its breast.' The nest contained 'four naked young, not more than three or four days old. Their bills were straight. . . . I saw nothing of the male bird. Whilst I was ascending the tree the female kept up a sharp barking kind of croak from the topmost twig of an adjacent tree.' This occurred upon the 22nd April 1889.

[*Obs.*—*Loxia pityopsittacus*, Bechst. Parrot Crossbill.—Edward claims to have identified a male Parrot Crossbill at about three yards' distance as it sat on a low, bare wall, 'in all his pride and beauty.' We only ask how many ornithologists are there who can successfully identify a Parrot Crossbill, who had probably never seen one before in life? This is another record equal in value with that already given of Richards' Pipit, *q.v. antea.*]

[*Obs.*—*Loxia leucoptera*, Gmel. White-winged Crossbill.—Edward says that a large flock of these birds settled on the trees near Castle Duff, Banff, about fifty years ago, and adds :—'They were much exhausted, and many of them were dropping off the trees.' He speaks also of their gaudy plumage, and 'nearly all the town flocked to see the strangers.' There are no other records, and there are no existing specimens to prove this old record.]

Sub-family *EMBERIZINÆ.*

Emberiza miliaria, *L.* Common Bunting.

Local Name.—Corn Bunting.

In the north of our area the Bunting is very abundant along the coast-line in summer, but it does not seem to advance far up the straths, even where there is a certain amount of cultivation. In winter it is certainly rare, nor do we remember it at all about the neighbourhood of Kintradwell at that season. Mr. Baillie says it was very common about Brora during the summer of 1892, breeding in the corn and potato fields.

They are certainly rare in the neighbourhood of Invergarry, and were not observed by us at Guisachan. They are abundant along the corn lands of East Ross-shire and the coast-line to Inverness. Mr. Craig says they occur about Glen Urquhart, but are getting scarcer, breeding in one place only; Muirhead observed them there as far back as 1867, in exactly the same locality.

In the southern parts this Bunting is resident. It is very common in the Laigh of Moray, especially in upland farms near the coast, or in flatter haughs, but is more local up-country. It is abundant on all the cultivated lands inland from the sandhills east and west of the Findhorn: local, and not very common in the districts visited by Hinxman, or along the inland valleys. Within the watershed of Lower Deveron it is common, between Cornhill and Aberchirder, on rolling agricultural land long since reclaimed from peat mosses and moors, but not so common there as in the flat lands and Laigh of Moray. Albinos occur not infrequently.

Emberiza citrinella, *L.* Yellow Bunting.

Local Names.—Skite, Yite, Yeldie, Yella Yorlin.

A resident and abundant species everywhere in the north of our area, except on the high, open grounds: much more generally distributed than the Common Bunting, and follows cultivation farther up the glens.

Southwards the Yellow Bunting is very abundant, and generally distributed. It is common in all the divisions of Deveron from Upper Cabrach down to Lower Deveron at Banff—even far up amongst the dwarfed and cattle-cropped bushes of wild dog-rose and birch on the hill grazings, to the whinny slopes of the coast, and among the bushes of the 'dens' of the north coast of Aberdeenshire. From the Carn districts to the Laigh, and Dalwhinnie and Tomintoul to Forres, Nairn, and Banff, and from far-up Badenoch down the whole course of Spey, the species is always present in more or less abundance, according to the size of suitable areas, vying with the flowers of the gorse and broom in richness and intensity of the yellow of its plumage.

[*Obs.—Emberiza cirlus*, L. Cirl Bunting.—So far all our records of this species are insufficient. Edward says, 'Very rarely found in this quarter'; and Dr. J. O. Wilson quotes a possible occurrence at second hand.]

Emberiza schœniclus, *L.* Reed Bunting.

Local Names.—Moss Sparrow, Ring Fowl (J. O. W.).

North of the Great Glen this species is widely distributed, local, but not abundant, except perhaps in a few favoured localities, such as the marsh at the foot of Glen Urquhart. A pair is occasionally seen in very out-of-the-way places, as, for instance, on an island in a far-away moor loch. The point of land that runs out and forms the division between Badenloch and Loch-na-Clar is an instance of this; here there are one or two pairs to be seen making their nests among the long heather.

In our more southern districts the species is resident and local; not very abundant even on the lower reaches of the valleys; rarer as one ascends the streams. We did not meet with it above Beldornie—*i.e.* not at all in Upper Deveron. But at even greater elevations we have met with it commonly, if not abundantly, as, for instance, as high as 1200 feet at the watersheds of Nairn and Findhorn, and sparingly in the higher-lying meadows along the Spey, in Badenoch, and at Dalwhinnie and Tomintoul. It frequents marshy river-banks, perching on willows, reeds, sedges, and other aquatic plants. About three pairs are known about Dalwhinnie; and once we met with it at the extreme west end of Loch Errochd. Evans only met with it at Dalwhinnie in August 1889, but it also occurs there in June and July (Backhouse). It is partially migratory, or shifts its ground as the season advances, and draws down often near the coast-lines in winter.

Plectrophenax nivalis (*L.*). Snow Bunting.

Local Names.—Gualach, Ghallic; (in the Carn district) Snaw-fleck (Keith, Grigor), North Cock or Cock of the North—a name also applied to the Brambling.

Records by previous authors of the presence of this species among the Cairngorms date back as far as we have materials, and so numerous have become the reports which have reached us of late years of birds, old and young, having been seen in midsummer by correspondents who, if not ornithologists, were at least mountaineers, and accustomed to keep their eyes about them as they climbed, that we do not consider it necessary to give these details, now that the nest and eggs have at last been found by experienced ornithologists, as we shall presently relate. Suffice it to say that, by comparing all these statements, it cannot be doubted that the headquarters of the nesting haunts of the Snow-flake is among the highest of the Cairngorms, and the names of several hills are now before us where they have been repeatedly observed. These data have been known to us for many years.

Other mountain areas frequented by the Snow Bunting we have recorded in the extreme north-west of our drainage area (vide *Fauna of Sutherland and Caithness*), and here also there has been an appreciable increase in their numbers of late years, as we were informed in 1893 that several pairs are now known to breed among the tops of the Sutherland hills.

Buckley was also informed by Mr. Malcolm that he possesses eggs of the Snow Bunting taken up Glengarry.

Gray (*Birds of the West of Scotland*, p. 126) says that Ben Wyvis, Ben Dearg, and an entire group of Bens lying to the south and east of Gairloch, are frequented by small flocks in summer; and again he gives an extract from the Journal of a Mr. W. Hamilton, London, who saw two pairs on the top of Scour Ouran on July 12th, 1868. We made inquiries about the birds on Ben Wyvis, but the person to whom we wrote either could not, or would not, tell us whether they were there or not.

It may not be generally known that this bird has also bred in confinement. Three eggs were laid in a small aviary belonging to Mr. John Gatherer of Elgin, and they were presented by him to the Elgin Museum on 10/viii/1887. It was an open-air aviary, but the eggs were addled.

Long as the Snow Bunting has evaded discovery and actual record as a nesting species on the Cairngorms since Pennant and MacGillivray first noticed it among the summits which 'guard the rills of infant Dee,' there is little cause to doubt its continuous presence there for at least one hundred years. That an increase in its numbers, however, has taken place we are quite convinced, as those who have spent a large share of their time amongst our mountains and Highlands, and are therefore perhaps in the best position to judge, have often remarked. There cannot, in our opinion, be the least doubt of their increase during comparatively recent years among the Sutherland hills, since indeed they were actually found breeding there. So also, we believe, an increase has taken place at the great centre, the Cairngorm mountains. The following is the account and actual record of the discovery of the nest and eggs, by Messrs. Hinxman and Eagle-Clarke, among the eastern Cairngorms, which we think well worthy of reproduction from the pages of *The Annals of Scottish Natural History*, of July 1893, p. 181 :—

'On the 2nd June, while traversing the bare, stony top overlooking a steep, rocky corrie, in one of the highest parts of this range, we observed a male Snow Bunting in beautiful summer plumage, sitting on a stone a few feet from us, and apparently quite unconscious of our presence. On moving nearer he flew off, and the female was seen creeping amongst the stones close by. From the motions of the birds we felt certain that the nest was not far off; but two successive spells of "lying up" failed to reveal its position, nor indeed did we again see the female bird. The next day we revisited the spot, but saw nothing of either of the birds, and spent some time fruitlessly tapping and turning over the loose stones in the vicinity, with the hope of putting the female off the nest. On returning in the evening the male was seen on the point of a rock a little way down the steep scree-face of the corrie, and just below the point where he was first observed. He was singing beautifully, and continued his song, while under observation from a distance of a few feet. The female was still invisible, and our chances of finding the nest, owing to the difficulty of driving her out from among such a chaos of loose blocks, seemed almost hopeless. The morning of the 5th, however, saw us back again, accompanied by Captain and Mrs. Savile Reid, Mr. St. Quentin, and Mr. Ogilvie Grant of the British Museum. No sooner had we reached the edge of the corrie than the female was seen a little distance below, flitting among the stones. Taking up our position in line along the face, we had only to wait ten minutes before the bird was observed to slip in under a rock by one of the writers; the spot was marked, and we knew the nest was ours. Twenty feet or so below the brow of the corrie, and at an elevation of 3700 feet above sea-level, the nest was placed about 18 inches in amongst the loose granite blocks forming the scree, in a position almost exactly similar to that of the nest taken by one of us in Sutherland in 1886. The eggs, five in number, were perfectly fresh, and the nest was composed chiefly of dry bents, with a foundation of moss, and lined with innumerable hairs of the red deer, and a few white ptarmigan feathers.'

Edward does not appear to have considered Snow Buntings common about Banff, and the Rev. J. Smith also marks them as 'rare' in his list, and notes them as 'arriving on the Lower Deveron about the beginning of November, and leaving about the 1st April,' and 'as seen about the rocks in winter.' In the parish of Strichen (Dee) they are spoken of as 'leaving the country in May.'

Snow Buntings occur in large flocks on all the upper hills of the Carn district in winter, and less abundantly along the shorelines. They are considered rare around Cullen, and single specimens procured there are usually preserved by local gamekeepers or others who have shot them. Dr. J. O. Wilson includes them as occurring 'in winter in flocks in the haughs about Huntly,' and he has also seen them on the tops of Bennachie at the same season. The following note by Mr. George Sim, though directly relating to the faunal area of Dee, is interesting as a side-light upon their movements, and requires no apology for its insertion in this place. Mr. Sim writes us:—'The Snow Bunting is common all along our east coast, arriving in October, and have been killed at Ythan mouth as late as July 4th, 1867. I have observed this species in flocks upon the inland hills of Aberdeenshire in winter, and' (herein lies some interest), Mr. Sim continues, 'I have invariably noticed that these flocks were composed of birds having a far greater amount of white upon their wings and body than those seen along the shore.' The inference seems clear that the old birds may become less migratory in their instincts than are the young of the year.

In Glenfiddich, we are assured, it is only seen in winter, and this is probably the case all over the actual Carn districts or lower foot-hills of the Cairngorm ranges. On the braes of Glenlivet they appear in astonishing numbers, and are shot in large quantities and eaten. Mr. J. G. Phillips has known of 118 shot at one discharge. 'A long line of oats,' says Mr. Phillips, 'is laid down, called a "ghosk," and the great flights alight and feed, and the man, watching his murderous opportunity, fires. When all are picked up, they are carried into the house, and everybody, male and female, commences to pluck them preparatory to boiling or roasting. Their flesh is simply delicious. People used to say, 'The heavier the snow falls, and the longer it lay, the "Ghallicks" got the fatter.'

In the winter the Snow Bunting is a common visitant, keeping mostly to the high grounds, and we never remember to have seen them along the coast, as is the case in Yorkshire. At times they arrive very early in October, or even the end of September in Sutherland.

END OF VOL. I.

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ERRATUM

Page 142 line 13, *for* ‘our map’ *read* ‘page 146.’

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